

The Only Weekly Mining Paper in the Union and Rhodesia.

THE South African MINING JOURNAL

Physical &
Applied Sci.
Serials

WITH WHICH IS INCORPORATED

The South African Mines, Commerce & Industries

ESTABLISHED 1891

PUBLISHED EVERY SATURDAY

Engineering

VOL. XXVI., PART I. No. 1310.

JOHANNESBURG, TRANSVAAL, SATURDAY, NOV. 1, 1916.

[WEEKLY, PRICE 60.]

LARGE MOTORS

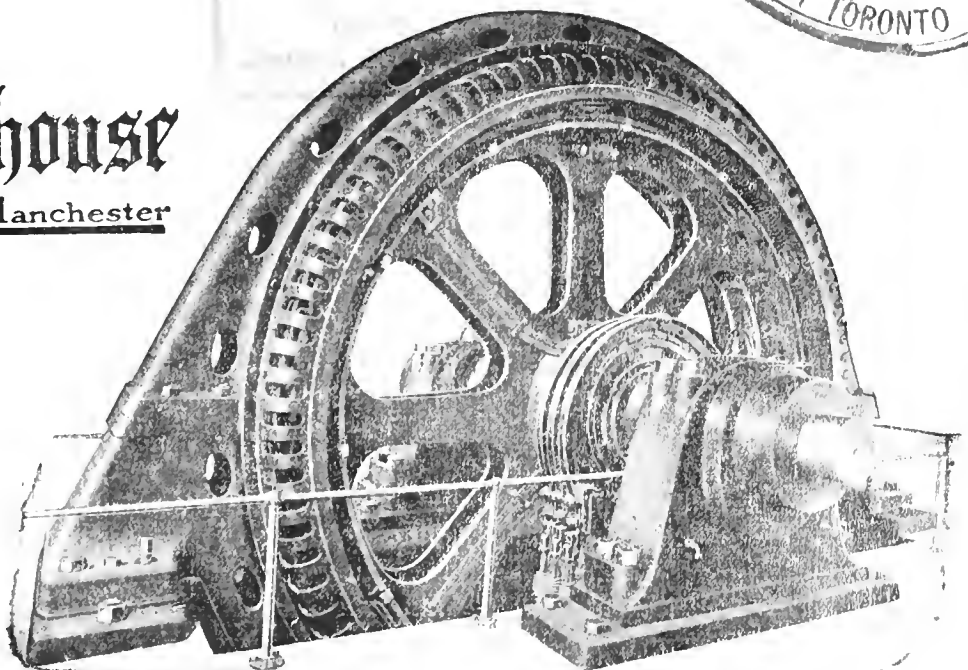
for mining purposes

When a motor has to perform the arduous duties incident to mining, it is of great importance that it should be of thoroughly safe design and sound manufacture.

Westinghouse motors are running under most adverse conditions all over the world and are giving entire satisfaction.

Westinghouse
Manchester

The
British Westinghouse
Electric and Mfg. Co.,
Limited, Consolidated
Bldgs., Johannesburg,
or
Thos. Barlow & Sons,
P.O. Box 178, Durban,
Natal.



ROBERT HUDSON & SONS, LIMITED.

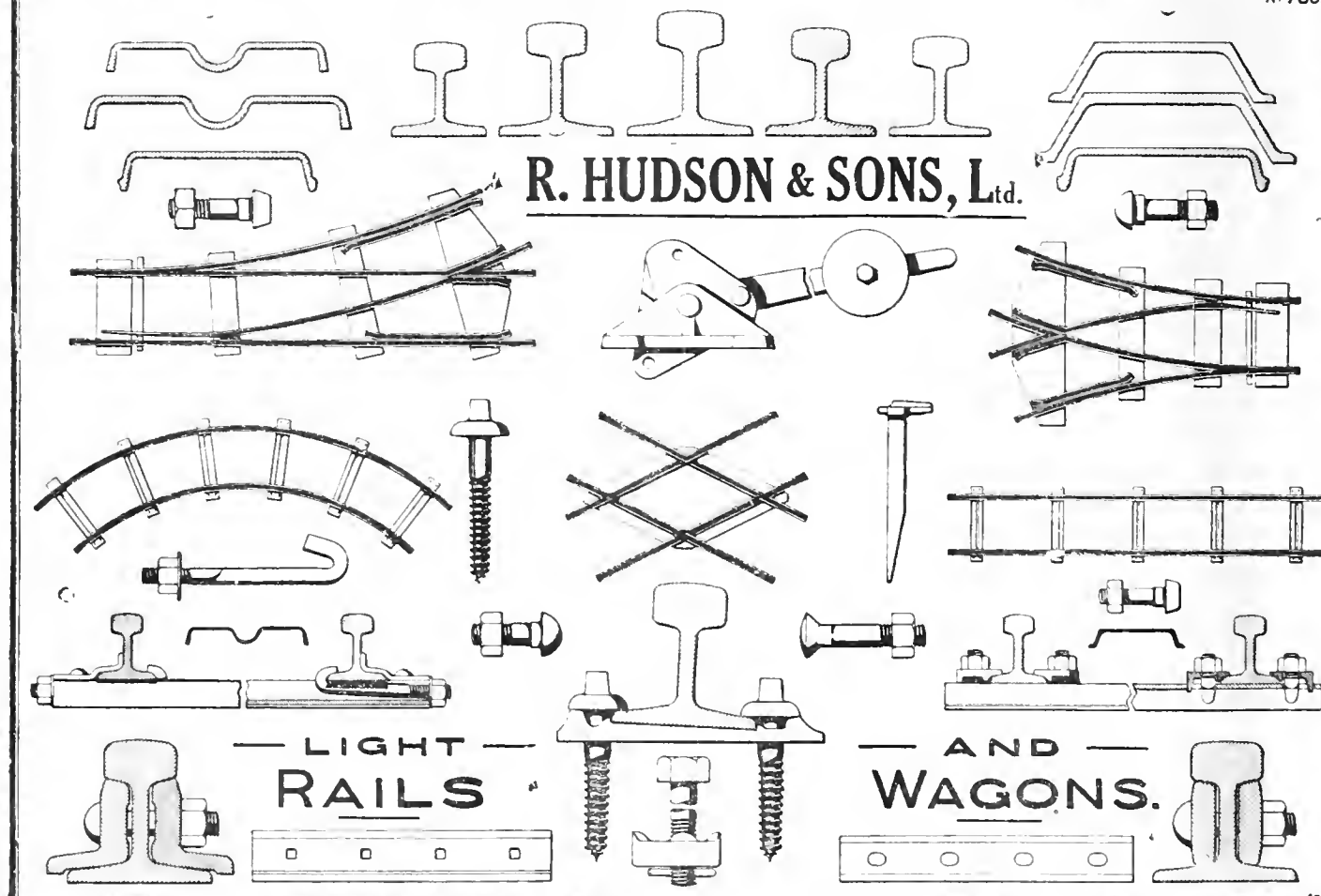
WORKS :—GILDERSOME FOUNDRY, Near LEEDS.

Phone 1731. Box 5744. JOHANNESBURG.

Tel. Add.:
"RALETRUX."

MANUFACTURERS OF
Tramway Material for Mines, Plantations, etc.

Nº 768.



LIGHT LOCOMOTIVES.

STEEL WAGONS FOR GOLD AND DIAMOND MINES.

HOPPER WAGONS FROM ONE TO FORTY TONS CAPACITY.

Steel Colliery Tubs.—Self-Oiling Wheels and Axles.—Bearings.

Wagons for Sugar Cane Plantations.

STEEL RAILS—ACCESSORIES—STEEL SLEEPERS

PRICES AND SPECIFICATIONS ON APPLICATION.

Large Stocks held at DURBAN, DELAGOA BAY, BEIRA, JOHANNESBURG, SALISBURY, etc.

Rhodesian Agents : P. PEECH & CO., Salisbury, Rhodesia.

HEAD OFFICE: 82, 83, 84, Cullinan Building, Johannesburg.

"INDUSTRY AS USUAL."

LIST OF

Manufacturers & Agents belonging to the British Empire, her Allies & Friends.

HERBERT AINSWORTH,

Engineer and Merchant, 304-307, The Corner House, Johannesburg, South African Agent for Green's Patent Fuel Economisers, Kennicott Water Softeners, Wood's Colliery Plants and Winches, Hart's Lambeth Cotton Ropes, Canadian Carbide, "S" Brand.

EDGAR ALLEN & CO., LIMITED,

5, New Club Buildings, Loveday Street, Johannesburg. Miner's Drill Steel, High Speed Steel, Engineer's and Smith's Tool Steel, Tappet Key and Gib Steel, Manganese and Hard Steel Grizzly Bars, Tube Mill Liner Bars, Skip Wheels, Truck Wheels and Axles, Twist Drills, Shovels, Hammers, Shoes and Dies, Buffers, Railway and Tramway Points and Crossings, Ore Crushers, Tube Mills, Cement Kilns, etc.

BARTLE & CO., LTD.,

Loveday House, Johannesburg. 'Phones 3553-4. Sale Agents for Sanderson Bros. & Newbould, Ltd., Sheffield; F. Reddaway & Co., Ltd., Manchester; Henry Pooley & Son, Ltd., Birmingham; John Shaw, Ltd., Sheffield; J. W. Roberts, Ltd., Leeds; Gimson & Co., Ltd., Leicester; T. Lister & Co., Ltd., Brighouse; John Davis & Son, Ltd., Derby; Unity Safety Fuse Co., Scorrier; F. Bartle & Sons, Carn Brea; and many other well-known British Manufacturers.

BATES, MASON & CO., LTD.,

Machinery Merchants, Box 1895, 'Phone 2807, Government Square, Johannesburg, have large stocks of mining machinery, agricultural and building material, etc., new and second-hand, for sale cheap. Buyers of all classes of machinery and buildings for cash.

BRITISH GENERAL ELECTRIC CO., LTD.,

Corner Loveday and Anderson Streets, Johannesburg. Electrical Plant and Supplies of all descriptions. 'Phones 4242-4243; Telegrams, "Current"; Box 4406. Branches at Capetown, Durban, Bulawayo, etc.

HUBERT DAVIES & CO.,

Electrical and Mechanical Engineers, for all kinds of Electrical Machinery and Supplies. Johannesburg, Durban, Capetown and Salisbury (Rhodesia).

The Denver Rock Drill & Machinery Co., Ltd.

'Phone 1426. Box No. 2367. 1-5, Royal Chambers, Johannesburg. "WAUGH" Air Feed Hammer Drills, for all classes of mining; DENVER Brand of Rubber Conveyor Belting; Rock Drill and Water Hoses, Red Sheet Packing, Grey Insertion; "DUXBAK" Waterproof Leather Belting and Waterproof Cement; "CLARK" Air Meters. Large Stocks always on hand.

FRASER & CHALMERS, LTD.,

Corner House, Johannesburg; also representing Holman Bros., T. and W. Smith, Ltd.; Tangyes, Ltd.; G. and J. Weir, Ltd.; and many other British agencies.

HADFIELDS LTD.

(Incorporated in England.)

46-47, Cullinan Buildings. 'Phone 5900, Johannesburg. Cast Steel Gyrating and Jaw Crushers and Crusher Spares, Wheels and Axles, Pedestals, Rollers, Pulleys and General Steel Castings.

HARVEY & RUSSELL, LTD.,

96, Frederick Street, Box 2043, Telephone 4004, Johannesburg; Power Transmission Machinery, Dewrance's Steam Fittings and White Metals, Machine Tools, "Rigby" Steam Hammers, Steel Construction Work, "Vislok" Patent Lock Nuts.

HOSKEN & CO., WM.,

Mining Material Merchants, Hosken's Buildings. P.O. Box 667, 'Phones 4113-9. Telegrams: "Hosken," Johannesburg. Agents for "Hydromax" New Water Hammer Drills. The fastest rock drill in the world.

ROBERT HUDSON & SONS, LIMITED,

Works: Gildersome Foundry, near Leeds. 83-4, Cullinan Buildings, 'Phone No. 1731. Telegraphic Address: "Raletrux." Manufacturers of all classes of Light Railway Material for Mining and Contractor use. Rails in all weights per yard. Switches and Crossings, Standard Trucks of various capacities kept in stock.

INGERSOLL-RAND CO.,

Exploration Building, Johannesburg. Air Compressors, Rock Drills, Hose, Steel, Pneumatic Tools, Cameron Pumps, Leyner Drill Sharpeners, Davis Calyx Coil Drills.

PHOENIX FOUNDRY,

Iron and Brass Founders, General Engineers and Blacksmiths. Office and Works: Hay Street, Ophirton. P.O. Box 3031, Johannesburg. 'Phone 1641. Sole Agents for Carntyne Steel Castings Co., Glasgow. Stocks of Tappets, Skip Wheels, Heads, etc. Casting Specialities: Pipe Fittings, White Iron Pump Spares and Tube Mill Liners.

REUNERT & LENZ, LTD.,

Consolidated Building (3rd Floor), Johannesburg; P.O. Box 92; Telephone No. 3061. Sole Agents for North British Locomotive Co., Ltd.; Leeds Forge Co., Ltd.; Babcock and Wilcox, Ltd.; Belliss and Morcom, Ltd.; Davidson and Co., Ltd.; Frank Pearn and Co., Ltd.; "Atlas Rock Drills," John Stephens and Son, Ltd.; E. and W. Lucas, Ltd.; Sir Joseph Jonas, Colver and Co., Ltd.; John Spencer and Sons, Ltd.; and many other high-class British Manufacturers.

SANDYCROFT, LIMITED,

Works: Chester, England. Offices, 63-64, Standard Bank Chambers, Telephone No. 360, P.O. Box No. 1976, Johannesburg. Suppliers of Stamp Battery Requisites of all descriptions, Belting, Winches, Ropes, etc.

FATTI'S S.A. MACARONI FACTORY,

Suppliers of Soup Macaroni to the Mines, etc. (for the Natives). This pleasing, nourishing and economical new food is much appreciated by Mine and Compound Managers, as they find in it an opportune change of the somewhat monotonous diet of the Mine Boys. Box 1139. 30-32, Jeppe Street, Johannesburg. 'Phone 962. (L. FATTI and Co., Ltd.)

S. SYKES & CO., LTD.

Southern Life Buildings, Johannesburg. Telephone No. 2190. P.O. Box 2303. Telegrams: "Psyche." Sole Agents for Robey & Co., Ltd., Crossley Bros., Ltd., E. R. & F. Turner, Ltd., Worthington Pump Co., Ltd., C. A. Parsons & Co., Ltd., Crompton & Co., Ltd., and Reyrolle & Co., Ltd.

E. W. TARRY & Co., Ltd., Austral Iron Works,

Corner of Anderson and End Streets, Box 1098. 'Phones 149 and 626, Johannesburg. Iron and Brass Founders and General Engineers. Machine Cut Gears in Raw Hide and any Metal a speciality, and in Cast Iron up to 18 feet diameter. Sole Manufacturers and Agents for Tregaskis Patent Drill Heating Furnace.

WADE & DORMAN, LTD.,

Box 2997; Telephone 1460, Johannesburg. Structural Steel Work of all kinds. Large Stocks of Joists, Channels, Angles, Tees, Plates, Chequered Plates, etc. Agents for British Steel Piling Co. Stockyard and Works: 217, Main Street.

C. F. WIENAND,

Commercial Exchange Buildings, Johannesburg; 'Phone 3. Sole Agent for Toledo Steels of all classes, Buttery Iron, Barwell's Bolts, Scott's Ropes, Mine Lubricants, Ltd., Stelatic Tyres. All highest quality.

PROFESSIONAL DIRECTORY.

LITTLEJOHN & WHITBY,

ASSAYERS TO THE
AFRICAN BANKING CORPORATION,
NATIONAL AND NATAL BANKS.

CONSULTING ANALYTICAL
CHEMISTS AND METALLURGISTS,

P.O. Box 849. Phone 1633.

Office and Laboratories:

IMMONDS STREET, JOHANNESBURG.

Assays and analyses of all Minerals, Drugs, Foods, Water,
Milk, Oils, etc., undertaken.

Experiments conducted. Reports made as to the treatment
of any class of Ore.

J. GOULDIE, C. & M.E., M.I.M.E., CONSULTING ENGINEER.

*Late Manager to the De Beers and other Diamond Mines.
30 years practical experience in Diamond, Gold, Coal, and
Metalliferous Mining in South Africa, and holder of Mine
Manager's Certificate (First Class).*

Mines and Mineral Propositions Inspected and
Reported Upon.

Office: 62, Standard Bank Chambers, Commissioner St.,
JOHANNESBURG.

Phone 2225. Telegraphic Address: "Edloug, Johannesburg."

Code: Imperial Combination and A.B.C. (5th edition).

Reference: The National Bank of South Africa, Limited, here
and in London.

PATENTS AND TRADE MARKS.

D. M. KISCH & CO., (C. H. M. KISCH—A. L. SPOOR).

ESTABLISHED 1874.

Members Chartered Inst. of Patent Agents, London.

COLONIAL AND FOREIGN PATENT AGENTS.

*The Firm undertake the Patenting of Inventions, and the
Registration of Trade Marks throughout the world; the
Preparation, Revision or Amendment of Specifications
and Drawings; reporting on Validity and Infringements;
obtaining copies of Specifications and Drawings of
Patents granted; Searches through the Patent Office
Records; the conduct of Oppositions, and all other
matters relating to Patents and Trade Marks.*

No. 16 to 19a, NATIONAL MUTUAL BUILDING,
Corner of Rissik and Market Streets.

P.O. Box 668. Telephone No. 774.

J. E. MILLS DAVIES,

CONSULTING MINING ENGINEER,

180, Stock Exchange Buildings, Johannesburg.

P.O. BOX 418. TEL. ADD.: "MINING JOURNAL." TELEPHONE 918

W. HOLMAN JAMES, M.I.E.(S.A.) M.(S.A.) I.E.E.

CONSULTING ELECTRICAL & ELECTRO-CHEMICAL ENGINEER,

17, 18 & 27, National Bank Buildings,

P.O. Box 5685. JOHANNESBURG. Telephone 5676.

G. A. WATSON, EXPERT COMMERCIAL PHOTOGRAPHER,

17, Hosken's Buildings, Cor. Rissik & Fox Streets,
Box 667, JOHANNESBURG.

Photographs of all the Leading Mines on the
Rand. Enlargements a Speciality. | Our Framing Department has all the latest
Mouldings. Machinery a Speciality.

Printing, Bookbinding, Account Books, Tracing Cloth, Transfer Paper,
Drawing Paper, Ferro Prussiate, Ferro Gallic, Indian Inks, Rubber Stamps,
Stationery of all descriptions, Draughtsman's and Surveyor's Requisites.

C. E. FOLKEY, Stationer & Printer.

Ask for a Quotation for Stationery or Printing.

7, MARSHALL SQUARE BLDGS., opposite main entrance Stock Exchange
TELEPHONE 2065.

NOTICE: To Mine Managers & Others

M. CHADWICK & CO., Scrap Metal and Rubber Buyers, are pre-
pared to pay highest prices for Copper, Brass, Lead, Zinc, Cast
Iron, or metal of any description. Lead, Zinc, White Metal in In-
gots always on hand for sale at lowest prices. Write, send, or
Telephone 5072, Box 2700, 55, Sauer Street. Prompt attention
guaranteed. Distance no object.

PILLATT & CO., Ltd., Stapleford, Nottingham, ENGLAND.

Agents: Bellamy & Lambie, 621 3, Consolidated Buildings,
Johannesburg, Box 453, Phone 1514. "Perfect Combustion"
Furnaces, special type, for all types Steam Boilers. Roasting
Furnaces and all kinds Apparatus burning solid fuel. Waste
and cheap fuels a special feature.

Cable:
"McKECHNIE,
WIDNES."

McKECHNIE BROTHERS, LIMITED.

SMELTING WORKS: WIDNES, ENGLAND.

LONDON OFFICE: 11, LOMBARD STREET, S.E.

BIRMINGHAM, NEWCASTLE, MANCHESTER, LEEDS AND BRISTOL.

BUYERS OF

COMPLEX ORES

Which contain COPPER.

COPPER-TIN ORES COPPER-LEAD ORES. COPPER-ZINC ORES

Residues, Mattes, Concentrates, Precipitates.

THE KNIGHTS DEEP, LIMITED.

(Incorporated in the Transvaal.)

REPORT OF THE DIRECTORS

For the Year ending 31st July, 1916.

Submitted at the Eighteenth Ordinary General Meeting of Shareholders, held in the Board Room, Consolidated Gold Fields Buildings, Simmonds Street, Johannesburg, on Friday, 27th October, 1916, at 11 o'clock in the forenoon.

Gentlemen,—Your Directors beg to submit their Report, together with the Audited Accounts, for the year ended 31st July, 1916.

CAPITAL.

The Capital of the Company, which is unchanged, is £743,526, in 743,526 shares of £1 each, all of which have been issued fully paid.

DEBENTURES.

The Company's debenture debt has now been extinguished by the final drawing of £24,400 which took place during the year.

PROPERTY.

During the year the right to mine certain portions of claims amounting to a total area of .226 of a claim was sold to the Witwatersrand Gold Mining Company, Limited, for £3,500. This ground is situated on the north-east corner of your property, and in the opinion of the Company's technical advisers would have been expensive to mine. Your Directors therefore decided to accept the offer of the above-mentioned company to work this small area. The area of your property is now equal to a claim area of 506.317 claims, situated partly on the farm Elandsfontein No. 11 and partly on the farm Driefontein No. 12, and are held as to 409.152 claims under claim licences and 97.165 claims under mynpacht title.

It is estimated by the Superintending Engineer that the intact claim area at 31st July, 1916, was equivalent to 355,987 claims, and that, in addition, a considerable tonnage of ore is available as reclamation from areas already stoped out.

OPERATIONS.

The Superintending Engineer's and Manager's Reports, which are attached, give a resume of the operations conducted at the mine during the period under review.

ACCOUNTS.

| | |
|--|--------------|
| The profit on working for the year, after allowing for the expenditure of | £3,175 6 7 |
| on renewals and replacements of machinery, plant, buildings, etc., amounted to | 197,942 18 6 |
| Add Sundry Revenue | 7,929 2 4 |
| Less Contributions to the Miners' Phthisis Compensation Fund: Expenditure due to war: estimated additional charge on gold lodged between July, 1914, and July, 1915, not yet realised; provisions for Profits Tax and Special War Levy; Sundry amounts written off, and Debenture Interest, etc. | 32,639 15 10 |
| leaving a total credit to Appropriation Account of | £173,232 5 1 |
| Add Balance at credit of Appropriation Account at 31st July, 1915 | 131,080 15 9 |
| | £304,313 0 9 |

From which there has been appropriated:—
 For Dividends Nos. 21 and 22 of 7½ per cent. each, declared during the year £11,528 18 0
 For Redemption of Debentures and Capital Expenditure 24,722 17 9
 £136,251 15 9

| | |
|--|---------------|
| For Fund for Additions to and Renewals of Machinery, Plant and Buildings | £11,152 17 10 |
| Less Expenditure on renewals and replacements during the year and charged to Working Expenditure and Revenue Account | 3,175 6 7 |
| | 7,977 11 3 |
| Leaving a balance at credit of Appropriation Account at 31st July, 1916, of | 144,229 7 0 |
| | £160,083 13 9 |

INVESTMENTS.

Your investments and interests in other concerns, which stood in the books at 31st July, 1915, at £45,217 1s. 3d., now stands at £16,666 11s.

During the year 34,017 Preference Shares and 4,000 Ordinary Shares of the Victoria Falls and Transvaal Power Co., Ltd., have been sold and the usual adjustments have taken place in your Company's interests in the Witwatersrand Co-operative Smelting Works, Limited, and the Native Recruiting Corporation, Limited. The dividends received on the holding of Breyten Collieries, Ltd., shares during the year, amounting to £1,339 5s., have been credited to Investments Account. A list of investments is shown in the Balance Sheet.

CAPITAL EXPENDITURE

The amount expended during the year on equipment of property, including shaft sinking, was £13,533 8s. 10d.

DIRECTORATE.

You will be asked to appoint two Directors in the places of Messrs. W. H. Dawe and W. S. Smits, who retire by rotation, but being eligible offer themselves for re-election.

AUDITORS.

You will be asked to fix the remuneration in respect of the past year's audit, and to elect two auditors in the places of Messrs. Douglas, Low and Co., and Mr. Charles Stuart, who retire in accordance with the provisions of the Articles of Association, but, being eligible, offer themselves for re-election.

GENERAL.

Mr. G. A. Chalkley continued to act as the Manager of the Company's mine during the past year, and your Directors wish to record their appreciation of the services rendered by him and his staff.

D. CHRISTOPHERSON (Chairman),
 A. G. GILL, Directors.

The Consolidated Gold Fields of S.A. Ltd., Secretaries.

Per A. C. GRANT.

Johannesburg, 16th October, 1916.

The Knights Deep, Limited.—continued.

| Dr. | BALANCE SHEET AT 31st JULY, 1916. | | Cr. | |
|---|-----------------------------------|--|--|----------------|
| To Capital— | | | By Property at cost— | |
| Issued Capital as per Balance Sheet at 31st July, 1915— | | | 506,543 Claims on farms Driefontein No. 12 and Elandsfontein No. 11, as per Balance Sheet at July 31, 1915 | £324,682 0 0 |
| 743,526 Shares of £1 each, fully paid | £743,526 0 0 | | Less amount received during year from Witwatersrand G.M. Co., Ltd. for right to mine out .226 of a Claim on this Company's North-Eastern Boundary | 3,500 0 0 |
| .. Reserve Account— | | | 506,317 | £321,182 0 0 |
| As per Balance Sheet at 31st July, 1915 | 327,331 17 10 | | .. Expenditure to date on equipment of Property, less amounts written off— | |
| .. Revenue appropriated for redemption of Debentures and Capital Expenditure— | | | Shaft Sinking | 305,732 16 2 |
| Amount as per Balance Sheet at 31st July, 1915 | £388,044 12 1 | | Surface Plant | 234,658 17 9 |
| Add amount appropriated during the year for redemption of Balance of Debentures and Capital Expenditure, as detailed in the Appropriation Account | £24,722 17 9 | | Underground Plant | 130,885 12 8 |
| Amount transferred from Fund for Additions to and Renewals of Machinery, Plant and Buildings | 8,980 6 1 | | Workshops and General Buildings | 109,835 9 7 |
| | 35,705 3 10 | | Ore Reduction Plant | 375,526 16 5 |
| | 421,747 15 11 | | Roads and Surface Improvements | 3,027 7 6 |
| | £1,492,655 13 9 | | Water Purification Installation | 2,034 9 5 |
| .. Fund for Additions to and Renewals of Machinery, Plant and Buildings— | | | Sand filling Plant | 8,275 2 5 |
| Balance at 31st July, 1915 | 1,002 14 10 | | Water-disposal Plant | 460 10 9 |
| Add amount appropriated during year | 11,152 17 10 | | Water-cooling arrangements | 389 14 7 |
| | 12,155 12 8 | | Metallurgical Department Laboratory | 96 16 6 |
| Less charged to Working Expenditure and Revenue Account | 3,175 6 7 | | | 1,171,473 13 9 |
| Written off for Additions during year | 8,980 6 1 | | .. Survey Instruments | 1,492,655 13 9 |
| | 12,155 12 8 | | | 78 7 2 |
| .. Reserve Gold | 9,108 6 3 | | .. Livestock, Vehicles and Harness, including motor cars | 1,281 10 0 |
| .. Sundry Creditors— | | | .. Furniture | 733 11 11 |
| Open Accounts for Wages, Stores, and Sundries | 73,845 3 3 | | .. Stores and Materials on hand, including Machinery for sale | 106,286 8 8 |
| Receiver of Revenue—provision for Profits Tax and Special War Levy | 13,077 10 0 | | Payments in Advance— | |
| | 86,922 13 3 | | Native Labour Recruiting Expenses | £3,899 4 3 |
| To Dividends and Debenture Interest unclaimed, including Debenture Bonds drawn for payment not yet presented, with interest accrued | 6,714 0 7 | | Licences, Insurance and sundries | 2,374 3 6 |
| .. Balance from Appropriation Account | 160,083 13 9 | | Advances on account of Machinery orders | 1,663 0 0 |
| | | | | 7,936 7 9 |
| | | | .. Investments and Interests in other concerns (at or under cost)— | |
| | | | 3,875 Ordinary Shares of £1 each in Victoria Falls and Transvaal Power Co., Ltd. (fully paid) | |
| | | | 11,114 Shares of £1 each in Breyten Collieries, Ltd. (fully paid) | |
| | | | 1,480 Shares of £1 each in Witwatersrand Native Labour Association, Ltd. (12s. paid) | 13,124 11 0 |
| | | | 3,209 Shares of £1 each in Witwatersrand Co-operative Smelting Works, Ltd. (8s. paid) | |
| | | | 69 Shares of £1 each in Native Recruiting Corporation, Ltd. (fully paid) | |
| | | | 200 Shares of £1 each in Rose Deep, Ltd. (fully paid) | |
| | | | Amount advanced to Native Recruiting Corporation, Ltd.—being deposit of 10s. each on total complement of 7,084 natives, being part of total liability under agreement of £1 per native | 3,542 0 0 |
| | | | | 16,666 11 |
| | | | Sundry Debtors | 14,218 13 9 |
| | | | Gold in transit | 39,507 14 10 |
| | | | Cash at Bankers, London and Johannesburg— | |
| | | | For Dividends and Debenture Interest unclaimed, including provision for unpaid Debenture Bonds drawn for payment, with accrued interest | 6,714 9 5 |
| | | | Cash— | |
| | | | On Deposit, London | 40,000 0 0 |
| | | | At Bankers, London, Johannesburg, and Germiston, and on hand at Mine | 29,404 19 9 |
| | | | | 69,404 19 9 |
| | | | | £1,755,484 8 0 |
| | | | | £1,755,484 8 0 |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

Contingent Liabilities—

| | |
|---|-------------|
| Balance payable on uncompleted contracts | £5,493 18 9 |
| Amounts uncalled on Shares held— | |
| 12s. per share on 3,209 Witwatersrand Co-operative Smelting Works, Ltd. shares | 1,925 8 0 |
| 8s. per share on 1,480 Witwatersrand Native Labour Association, Ltd. shares | 592 0 0 |
| Native Recruiting Corporation, Ltd.—Deposit Account—10s. per native uncalled on complement of 7,084 natives | 3,542 0 0 |
| Rose Deep, Limited—Contingent liability under agreement dated 9th December, 1915, having reference to the pumping of mine water | |

£11,553 6 9

£1,755,484 8 0

The Consolidated Gold Fields of S.A. Ltd., Secretaries,
Per A. C. GRANT.D. CHRISTOPHERSON (Chairman),
A. G. GILL, Directors.DOUGLAS, LOW AND CO.
(Incorporated Accountants).CHAS. STUART,
(Chartered Accountant), Auditors.

The Knights Deep, Limited.—continued.

Dr. Working Expenditure and Revenue Account for the Year ended 31st July, 1916. Cr.

| | | | |
|---------------------------------------|----------------------|-------------------------------------|----------------------|
| To Mining Expenses— | | By Gold Account | £994,969 1 4 |
| Mining & Pumping | £512,229 19 4 | | |
| Development | 22,879 14 5 | | |
| | <u>£535,109 13 9</u> | | |
| „ Reduction Expenses— | | | |
| Breaking, Sorting and | | | |
| Transport of Ore | 33,920 7 3 | | |
| Milling Expenses | 52,086 4 11 | | |
| Tube Milling Ex- | | | |
| penses | 35,378 11 5 | | |
| Cyaniding Sands Ex- | | | |
| penses | 47,702 11 6 | | |
| Cyaniding Slime Ex- | | | |
| penses | 36,474 11 0 | | |
| | <u>205,562 6 1</u> | | |
| „ General Expenses—Mine | 44,531 0 8 | | |
| „ Expenditure on Renewals and Re- | | | |
| placements of Machinery, Plant | | | |
| and Buildings | 3,175 6 7 | | |
| „ Head, London and Paris Offices' | | | |
| Expenses | 8,647 15 9 | | |
| | <u>£797,026 2 10</u> | | |
| „ Balance, being Profit on Work- | | | |
| ing carried down | 197,942 18 6 | | |
| | <u>£994,969 1 4</u> | | <u>£994,969 1 4</u> |
| To Miners' Phthisis Compensation | | | |
| Fund— | | By Balance brought down | £197,942 18 6 |
| Levies under Miners' Phthisis Act | | „ Rents received, less maintenance | £664 10 3 |
| for year ended 31st July, 1916 | £5,495 0 7 | „ Interest, Commission & Exchange | 1,264 18 7 |
| „ Expenditure due to war | 7,112 15 7 | „ Sundry Revenue | 2,186 3 3 |
| „ Amounts written off for deprecia- | | „ Profit on Sale of Investments ... | 3,813 10 3 |
| tion on Livestock, Vehicles, Furni- | | | <u>£7,929 2 4</u> |
| ture, Machinery for Sale, etc., less | | | |
| sundry credits | 1,450 6 2 | | |
| „ Debenture Interest, including Guar- | | | |
| antors' remuneration and Trustees' | | | |
| fees for 11 months ending 30th | | | |
| June, 1916 | 1,525 6 8 | | |
| „ Gold Realisation— | | | |
| Provision for further charges on | | | |
| „ Gold won between July, 1914, | | | |
| and July, 1915, not yet realised | 3,909 0 2 | | |
| „ Profits Tax— | | | |
| Provision for year | | | |
| ended July 31, 1916 | £8,717 10 0 | | |
| Add amount under- | | | |
| estimated for year | | | |
| ended July 31, 1915 | 2 4 0 | | |
| Provision for Special | | | |
| War Levy, in terms | | | |
| of Act 24 of 1915 | 4,360 0 0 | | |
| Add amount under- | | | |
| estimated for year | | | |
| ended July 31, 1915 | 67 12 8 | | |
| | <u>13,147 6 8</u> | | |
| „ Balance carried to Appropriation | | | |
| Account | 173,232 5 0 | | |
| | <u>£205,872 0 10</u> | | <u>£205,872 0 10</u> |

Dr. Appropriation Account. Cr.

| | | | |
|------------------------------------|---------------------|------------------------------------|---------------------|
| To Revenue appropriated for re- | | By Balance at July 31, 1915 | £131,080 15 9 |
| demption of Debentures and | | „ Balance from Working Expendi- | |
| Capital Expenditure— | | ture and Revenue Account for | |
| For Redemption of Balance of | | the year ended July 31, 1916 ... | 173,232 5 0 |
| Debentures | £24,400 0 0 | | |
| For Capital Expenditure | 322 17 9 | | |
| | <u>£24,722 17 9</u> | | |
| „ Dividends— | | | |
| Dividend No. 21 of 7½ per cent., | | | |
| declared December 14, 1915 ... | 55,764 9 0 | | |
| Dividend No. 22 of 7½ per cent., | | | |
| declared June 28, 1916 | 55,764 9 0 | | |
| | <u>111,528 18 0</u> | | |
| „ Fund for Additions to and Re- | | | |
| newals of Machinery, Plant | | | |
| and Buildings— | | | |
| Further provision as voted— | | | |
| amount equal to 10 per cent. | | | |
| of Dividends Nos. 21 and 22 | 11,152 17 10 | | |
| Less—Amounts expended on Re- | | | |
| newals and Replacements | | | |
| and charged to Working Expendi- | | | |
| ture and Revenue Account, | | | |
| as above | 3,175 6 7 | | |
| | <u>7,977 11 3</u> | | |
| „ Balance carried to Balance Sheet | 160,083 13 9 | | |
| | <u>£304,313 0 9</u> | | <u>£304,313 0 9</u> |

Engineering Works and Foundries.

ESTABLISHED 1888.

Wright, Boag & Co.

**ENGINEERS
AND
FOUNDERS.**

Offices: Frederick Street.

Works: Marshall's & City and Suburban Townships.

Telephones:
1056 and 1057.

P.O. Box
545.

Tel. Add.:
"SWIVEL."

JOHANNESBURG.

P.O. Box 3960.

Telephone No. 877

W. H. BATTEN
(Late BATTEN & EDGAR)

**The RAND BOILER, TANK,
:: and IRON WORKS. ::**

Trucks, Steel Cyanide Tanks, Chimneys, Cones, Skips, and all
Mining Plate Work a speciality.

*Office and Works: Albert, Gold, Durban and
Nugget Streets, City and Suburban.*

Britannia Engineering Co.

LIMITED.

General and Mechanical Engineers.

**IRON AND BRASS FOUNDERS.
BOILER AND GENERAL SMITHS.**

Repairs and Renewals promptly and efficiently executed.
Sole Makers of the Hearn Patent Pendulum Pump.

201-3-5, Main Street and 220-2-4, Fox Street,
Box 1558. JOHANNESBURG. 'Phone 896.

**Austral
Iron
Works.**

**ENGINEERS
AND
FOUNDERS.**

Special Metal for
wearing plates for
Tube Mills and
Centrifugal Pumps.

Machine Cut Gears in Raw Hide or any Metal a
Speciality.

And in Cast Iron up to 18 feet diameter.

Sole Agents and Manufacturers of Tregaskis'
Drill Heating Furnace.

E. W. TARRY & Co., LTD.

Anderson and End Streets,

JOHANNESBURG,

'Phone 149.

Box 1098.

Tel. Add.: Austral."

Standard Brass Foundry,

BENONI,

PHONE 187.

Brass Founders and Finishers.

Castings in Gun Metal, Phosphor Bronze, Naval, Silica
and Manganese Bronze up to 50 cwt.

Aluminium Castings for all purposes.

Makers of the well known ACID RESISTING METAL for all
Pump parts. We guarantee this metal to be superior to any
imported.

SUPPORT LOCAL INDUSTRIES.

WORKS AND OFFICES:

CRANBOURNE AVENUE, BENONI.

JAMES SMITH,

Surface and
Underground.

Diamond Drilling
Contractor.

P.O. Box 3180, JOHANNESBURG.

The best "Reef Traveller" is the *South African Mining Journal*.

PLEASE NOTE.**We are the Largest Buyers of
SCRAP RUBBER**

In South Africa.

Enquiries solicited to our Johannesburg Buyers—

JOHANNESBURG VULCANIZING WORKS,

C/o Loveday & Anderson Streets, Johannesburg

Box 3912, Johannesburg.

Or direct to us—

CAPE RUBBER WORKS,

65, Shortmarket Street, CAPE TOWN.

Box 785, Cape Town.

To the Engineer or Draughtsman, as much as to a Business man, a good Pencil is an essential part of his equipment. He must know the grade of lead he wants to use and be able to depend upon getting exactly that grade each time.

**VENUS****PENCILS**

are absolutely uniform. Made in 17 degrees (6B Softest to 9H Hardest) they fulfil every technical requirement. Price 6d. each. Full length 7". Of all Stationers.

KNOXITE ANTIFRICTION METALS.

Manufactured on the spot from Virgin Metals

in grades for ALL PURPOSES.

For Bearings of Turbines, CRUSHERS, TUBE-MILLS, CAM SHAFTS, Skips, Trucks, Internal Combustion Engines, ELECTRICAL MOTORS, etc., etc.

We study Special and Particular Requirements
and invariably satisfy!

ALEX KNOX, 246, Fox Street, Johannesburg.Phone
3753.**DICK'S BELTING.***No Belt is a***DICK'S ORIGINAL BALATA**

*unless stamped every few feet
with the Trade Mark.*

**FACTORIES: GLASGOW, SCOTLAND.
PASSAIC, NEW JERSEY, U.S.A.**

SOLE AGENT—

S. P. Ruthven,

3, WINCHESTER HOUSE,
JOHANNESBURG.

BOX 3013.

'PHONE 80.

TELEGRAMS: "BELTING."

EXPLOSIVES

For Mining, Quarrying, Farming, Railway and Irrigation Work.
"Permitted" Explosives for Coal Mines.

AGENTS:

LONDON.—CAPE EXPLOSIVES WORKS, LTD., 15, St. Swithin's Lane, E.C.

TRANSVAAL.—REUNERT & LENZ, LTD Box 92, Johannesburg.

RHODESIA.—L. R. FORBES, Box 683, Bulawayo, and Box 427, Salisbury.

KIMBERLEY.—CAPE EXPLOSIVES WORKS LTD., & E. W. TARRY & CO., LTD.

AUSTRALASIA.—KIRK O'BRIEN, Collins House, Collins Street, MELBOURNE.

MANUFACTURERS of

Blasting Gelatin, Gelignites.
Ligdyn Dynamites.
"Cape Brand" Subsoil Dynamite
Fuse Igniters.

Bi-Sulphate of Soda.
Sulphuric and Nitric Acids.
Sulphur & Sulphur Lime Solution
Pure Glycerine.

Fuse, Detonators and Electric Blasting Accessories Stocked.
Nitrate of Soda.

CAPE EXPLOSIVES WORKS

— LIMITED, —

P.O. DYNAMITE FACTORY,

SOMERSET WEST, CAPE PROVINCE.

CANADIAN CARBIDE.

Why you should use "S" Brand Canadian Carbide.

- I. Because it is the Best Carbide.
- II. It is made in the British Empire.
- III. The price is no more than Foreign Carbide.



THEREFORE

BUY "S" BRAND CANADIAN CARBIDE.

SOLE AGENT:

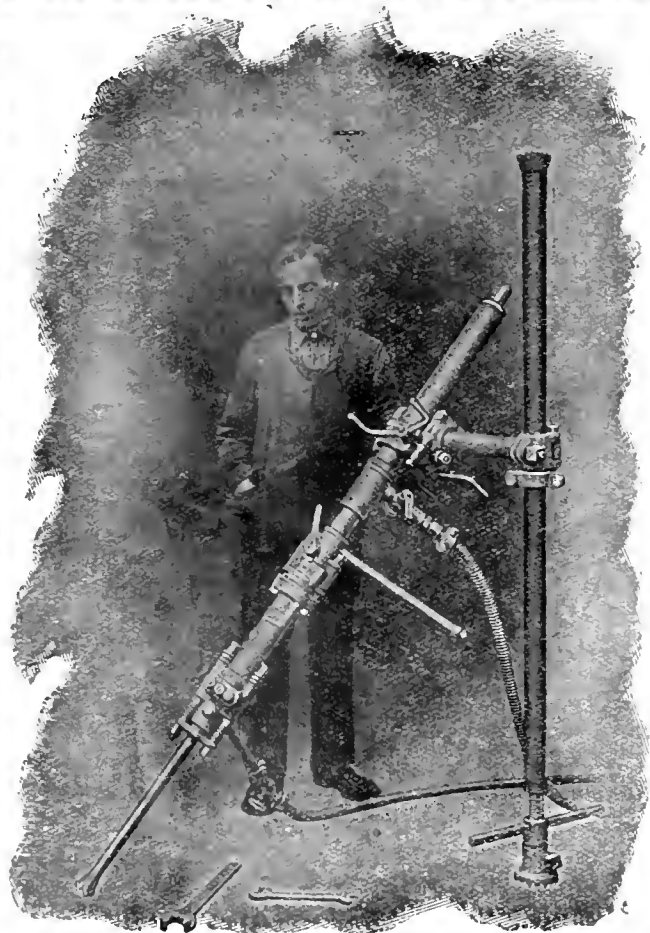
HERBERT AINSWORTH,

3rd FLOOR, CORNER HOUSE, JOHANNESBURG.

TELEPHONE Nos. 356 & 1308.

Telegrams: "AINSCO."

P.O. Boxes 1553 & 1671.



"HYDROMAX"

New Water Hammer Drills to
supersede Reciprocating Drills.

The "Hydromax" weighs 80lbs.

Suitable for Stopping, Raising and Driving.

It Drills 30% faster than any other drilling machine.

Low Air Consumption.

No Mine Manager can afford to neglect the economic
merits of the

"HYDROMAX"

THE FASTEST ROCK DRILL IN THE WORLD.

We have exclusively manufactured drills for thirty-seven years
and the "Hydromax" is our crowning effort.

THE CLIMAX ROCK DRILL & ENGINEERING WORKS, LTD.,
CARN BREA, CORNWALL.

WM. C. STEPHENS, Managing Director.

Agents—

WM. HOSKEN & CO.,

BOX 667, JOHANNESBURG.

Phones 4113 9.

Telegrams: "HOSKEN," Johannesburg.

THE SOUTH AFRICAN
Mining Journal,

WITH WHICH IS INCORPORATED

South African Mines, Commerce and Industries.

ESTABLISHED 1891.

VOL. XXVI., PART I.] NOVEMBER 4, 1916. [No. 1310.

HEAD OFFICE: 176-180, Stock Exchange Buildings, Fox Street (2nd Floor), Johannesburg, Union of South Africa.

Telephone 913. P.O. Boxes 963 and 418.

Cable and Telegraphic Address: "MINING JOURNAL."

AGENTS FOR GREAT BRITAIN: Argus South African Newspapers, Ltd., Byron House, 82-85, Fleet Street, London, E.C.

AMERICA: Gotham Advertising Co., 95, Liberty Street, New York.

ANNUAL SUBSCRIPTION RATES: Oversea, £2; Union of South Africa and Rhodesia, £1 10s.; Local Delivery (Town only), £1 6s.

Copies of this journal are obtainable at all Branches and Agencies of the Central News Agency, Ltd., at all News Agents and Railway Bookstalls throughout South Africa, and at the London Agency as above.

NOTICE.—The postage of this issue of the *S.A. Mining Journal* is: South Africa, 1d. All other parts, 1½d.

CONTENTS.

PAGE.

Notes and News ... 213

Topics of the Week:

| | |
|--|-----|
| Mere About State Mining ... | 215 |
| The Spurt in the Coal Industry ... | 216 |
| Industrial Unrest ... | 216 |
| Proposed New Government Mines ... | 217 |
| The Week in the Sharemarket ... | 218 |
| Finance After the War, by H. Wilson Fox ... | 219 |
| The Proposed British Trade Bank ... | 221 |
| The Week in the Mining Material and Engineering Trades ... | 227 |

Rhodesian Section:

| | |
|--|-----|
| Rhodesian Mineral Output for September ... | 229 |
|--|-----|

Industrial Section:

| | |
|------------------------------------|-----|
| Cotton Growing in South Africa ... | 232 |
|------------------------------------|-----|

Engineering Notes and News:

| | |
|--|-----|
| The Prospects of the Carbonisation of Coal, with By-Products Recovery, as a South African Industry ... | 233 |
| Company Meetings: Knights Deep; Western Rand Estates; Machavie G.M. Co. ... | 235 |

Notes and News.

The address delivered by the Minister of Mines and Industries to the Advisory Industrial Board recently, and the very pertinent comment upon that address by Mr. J. M. Buckland, have again emphasised the danger of obscuring by mere words the important issues at stake. Fortunately there is another body—the Industrial Research Committee—which, though little has been heard of its activities of late, is quietly working for the same excellent object as Mr. Malan and Mr. Buckland. We are indebted to the Chairman of the Industrial Research Committee, Mr. C. D. Leslie, for drawing our attention to a valuable couple of articles in the *London Times* by Mr. H. Wilson Fox on Finance and Industry after the War. We gladly reprint the first of those articles in this issue. As some of our older readers may remember, Mr. Wilson Fox was formerly Editor of this journal, and has for many years been manager of the British South Africa Company in London. Although the war has yet to be brought to a successful conclusion, it is none too soon to begin taking stock of the position that will follow its conclusion. And the cardinal fact for us all to remember is that conditions can never be quite the same again. As the British Trade Commissioner, Mr. W. G. Wickham, has been telling local audiences lately, we must begin to face after-war problems now. The thoughtful articles of Mr. Wilson Fox will help, in some measure, to visualize the future and prepare for it.

* * * *

The auxiliary winze west of the east shaft of the Knight Central, Ltd., has now reached the horizon of the 19th level, and in a borehole from this point the Main Reef and South Reef have been intersected, giving the following values:—Main Reef, 6 dwts. over 46 inches; South Reef, 14 dwts. over 56 inches.

* * * *

The following circular has been sent out by the Salisbury Chamber of Mines to all Rhodesian producing mines:—"As it is considered that an annual conference of the representatives of and participants in the mining industry will be most advantageous to the industry, it has been agreed by the Rhodesia Chamber of Mines, The Rhodesian Small Workers' and Tributors' Association and this Chamber that the time has arrived when an annual mining conference should be held for the purpose of discussing and considering matters in connection with the industry, and making necessary representations to the Government thereon, or taking other action. At this first conference it has been decided to invite all interested in the production of gold and other minerals, and any individual attending will, it is hoped, give expression to his views or the views of the locality whence he comes. As the holding of subsequent conferences must depend largely upon the success of the one to which you are now invited, it is hoped you will make every effort to attend, thereby laying the foundation for a stronger and more combined industry than has hitherto been existent in Rhodesia. An agenda of subjects proposed for discussion will be circulated at a later date, and in the meanwhile I am to request that you will be prepared to attend the conference to be held in Salisbury, commencing on 15th November, 1916, and if there is any subject for discussion or resolution which you wish to bring forward."

* * * *

Mr. Robert Williams, in the course of his speech from the chair at the meeting of the Tanganyika Concessions, Ltd., last week, denied that any negotiations had taken place with American groups with a view to the latter buying up the control of the company. The only possibility of acquiring such a control, he said, was by purchasing the

shares, but he was in favour of legislation to prevent great companies with Imperial interests from passing under foreign control. Germany had been pursuing this acquisitive method all over the globe for years, thus gradually securing control of the world's commerce. The speaker instanced a transaction shortly before the war in which a German bank had acquired control of the British company that held chartered rights over the whole of Portuguese East Africa north of the Zambezi, and including the best harbours on the East African coast. He had tried his hardest, but unsuccessfully, to defeat this transaction, and it was his opinion that if it were not upset before the declaration of peace, Germany would still hold a considerable footing in East Africa, though she had been cleared out from all the rest. He declared, in conclusion, that the Tanganyika Concessions would remain a British concern, even if it had to ask the assistance of some of our big shipping and copper groups, or to call on the new British Trade Bank.

A meeting of members of the Commercial Exchange was held last week to receive the report of the committee appointed at the annual meeting to inquire into possible enemy trading.

Enemy Trading.

The committee reported that they had received as full details as possible in regard to shareholders in limited liability companies, and had details of other firms. The legal opinion was that where firms were permitted to trade by Government they could not be deprived of facilities to which as members of the Exchange they were entitled. The committee interviewed the custodian, Colonel Hamilton Fowle, who explained that the policy of the Government was that in the case of a firm partly owned by British capital, and partly by enemy, such firms should be allowed to trade, as otherwise British shareholders would be made to suffer, as also the employees, who so far as they knew were in every case British. The moneys accruing to enemy shareholders in such firms were paid to the custodian, and the only persons benefiting by such firms being allowed to trade were the British section. Where enemy shareholders were large enough to control the affairs of a company such concern had been, or was being, wound up under the supervision of the custodian, and the latter assured the committee that such liquidations were being pressed on by him, and not allowed to continue for an indefinite period. The committee also ascertained that Government was fully informed as to the position of firms with enemy shareholders, probably more so than the majority of people were aware, and that steps were being taken to see that the Act was carried out. Members, continued the report, would be surprised if they knew how much Government had been able to do under most difficult circumstances, and the committee assured members that Government was doing everything possible not only to take charge of enemy moneys, but to conserve British interests. It was probable that the interests of enemies vested in trustees or the custodian in various parts of the British Empire would be equal in value to the interests of British subjects now in the hands of the enemies, so there was every reason to expect that the interests of British subjects in enemy countries would be respected, and in due course handed back to British owners. The committee's report was unanimously approved.

Some time ago the South African Association of Analytical Chemists forwarded to the Ministry of Munitions offers of service by a number of chemists in South Africa, experienced in the manufacture of explosives and acids, this in response to a notification of the existence at that time of a shortage of works chemists in Great Britain.

Munition Chemists from South Africa.

The secretary of the Association (Mr. James Gray, F.I.C.) has now received two letters of acknowledgment from the Staff Bureau of the Ministry of Munitions. The first of these, dated September 23, notified that the matter in question was under consideration, but that the position as regards works chemists had improved. The second, dated September 29, states that the question had been fully considered, and proceeds:—At the date of Mr. Taylor's letter of June 22 last there was a shortage of works chemists for

our purpose, but I am glad to say that the position has recently been much relieved, and Mr. Quinan agrees that under the circumstances the expense of bringing over the men, the names of whom have been kindly submitted, would not be justified at this stage. Moreover, it would appear that the majority of the men most suited are already engaged in South Africa upon important work, and the Ministry have adopted the principle of not disturbing men who are already engaged upon work which is essential to the interests of the nation. It is realised that a large amount of trouble has been taken by you in the matter, and I am requested to state that this Department greatly appreciates your service in the matter. At the same time the Department desires to express its appreciation of the offers of services by those chemists who have replied to your inquiry.

We have to thank the editor of the *Morogoro News* for a copy of the first issue of that sprightly little weekly—"the first British newspaper in conquered territory in East Africa." All concerned are to be congratulated on the general excellence of the first impression. Our readers will be chiefly interested in the following extract describing some of the geological features of our newly-won possessions:—

The following notes on rock formations met with in German East Africa, do not presume to be anything in the nature of a geological survey report, and they are necessarily scant and general owing to the absence of microscopic aid, and the vicissitudes of campaigning making an extended examination in many instances impossible. Those of us, however, interested in the mining possibilities of the country we are now in, may find some points of interest. In the region of Kilimanjaro the whole of the formation is practically a closed book, being sealed up for hundreds of miles with the ancient lava flows, but as one approaches the edges of these flows it becomes apparent that crystalline sandstone lies underneath, and it may be taken for granted that this metamorphosed sedimentary rock, with crystalline limestone, forms the general country rock, as is the case with the base metal belts in the Congo Belge and Northern Rhodesia. In places this sandstone has intrusions of the older basic rocks, and on the contacts with them quite likely looking "greisen" is to be found, which in places is possibly a carrier of cassiterite. At the foot of the Para Mountains in the vicinity of German Bridge, the writer found several pieces of true "greisen" containing lübia mica and full of minute garnet. Many of these silicious metamorphic rocks very nearly approach the metamorphic schists in appearance and are impregnated in places, near the small contact zones, with biotite or sphene. Near Handeni there is such a contact and belts of altered sphene schists traverse several of the hills to the north of the village, together with a dyke of epidiorite. A pure-white felspathic rock noticed here is a likely mica carrier. The same sandstone, but coarser in grain, is met with right along the road travelled by the advance, and some of the bands of felspar and silica running through it, approximate in appearance to auriferous quartz. But they are far from the right thing to the initiated. There are stories of marvellous alluvial gold deposits in this country, and although one is sceptical on hearsay evidence, there is no reason why they should not exist. Sandstone often contains a grain or two of gold to the ton, and centuries of Nature's attrition on a comparatively easily weathered rock like this, would concentrate quantities of gold in the valleys and ancient river beds.

The feature of the mining statistics for September, published this week, is the coal output, which is returned at the record figure of 895,014 tons, of the value of £245,815, an increase of 19,296 tons and in value £4,700 on the August output. The Transvaal produced 548,353 tons, an increase of 19,674; Natal 273,117 tons, a decrease of 3,278; Free State 69,862 tons, an increase of 3,186; and the Cape 3,622, a decrease of 286 tons.

The Transvaal shipped 615 tons of copper, of the value of £33,191, and 260 tons of tin, which was added to by five and a half tons from the Cape, the total value of the tin shipment being £28,314. The production of asbestos in September was valued at £7,616, the principal contribution being from the Cape, with 320 tons, while in the Transvaal 92 tons were recovered, and in Natal 3 tons. Silver recovered from gold bullion had the value of £8,692, which maintains the average. The labour return shows that 30,687 whites and 277,825 coloured people were engaged in mining throughout the Union, the former being an increase of 162 and the latter an increase of 5,080. The total salaries and wages paid to white employees for the six months ended

June, 1916, amounted to £4,551,583, of which £3,983,464 was paid in the Transvaal. Special payments made to white employees on active service, which is included in the above figure, amounted to £171,194.

* * * *

We read in the U.S. Commerce Reports that an expert (Mr. Frank Rhea) from the Division of

American Export Trade Investigations.

Vvaluations of the Interstate Commerce Commission will represent the Bureau of Foreign and Domestic Commerce in an investigation of the field for American railway equipment and supplies in the Far East, Australia, and South Africa. He is already engaged in making arrangements for conferences with manufacturers, contractors, and selling agents, which will be held during a preliminary trip to the principal manufacturing centres in the States in September. He will then go abroad to enter upon a careful study of the conditions as they affect railway construction, equipment, traffic, the probable extension or reconstruction of railways, tramways, etc. While all specific opportunities for securing orders will be promptly reported, the real purpose of the investigation is to gather fundamental facts for the American manufacturer. *The Electrical Review and Western Electrician* also publishes the following interesting piece of information:—"The Bureau of Foreign and Domestic Commerce, United States Department of Commerce, has selected R. A. Lundquist, consulting engineer, of Minneapolis, Minn., to study the markets for electrical goods in China, India, Australia, South Africa, and a number of other countries in the Far East. Some years ago, American electrical goods met with considerable competition in the Far East, but the war has greatly handicapped the principal European competitors, and American manufacturers are making a serious effort to take advantage of the situation and get permanent possession of the markets. A great deal of preliminary study is still needed, and Special Agent Lundquist's part in the campaign will be to ascertain the types, qualities, and costs of electrical apparatus with which American goods come into competition, as well as to look into the general opportunities for the sale of such goods. Before leaving on the trip, the special agent will spend some weeks in the principal business and manufacturing centres conferring with manufacturers, exporters, and business houses on the scope of the investigation."

* * * *

The report of the Executive Committee of the Rhodesia Chamber of Mines for the month of September, 1916, has the following,

Rhodesia Chamber of Mines' Report.

inter alia:—"With reference to the memorandum prepared by the Chamber in conjunction with the Salisbury Chamber of Mines and the Rhodesia Small Workers' and Tributors' Association, the Government has decided to hold an enquiry into the finances of the railway companies operating in Southern Rhodesia, and the scale of rates in force on their lines. Steps are being taken to have an impartial Commissioner, of known experience in railway matters, appointed by the Board of Trade in London. The railway companies will appear before the Commissioner, and it will also be competent for the various public bodies throughout the country to lay evidence before him. It is expected that the Commissioner will arrive in Rhodesia early next year. As the restrictions imposed by the Imperial Government upon articles exported from Great Britain appear to be increasing, His Honour the Administrator was interviewed recently on the subject, and as regards materials required for the mining industry in Southern Rhodesia an endeavour is being made to arrange with the Ministry of Munitions that indents for mining material shall be examined by either the Rhodesia or Salisbury Chamber of Mines, and it found to be in order a declaration to that effect will be made by either Chamber and endorsed by His Honour. The Patents Committee has recommended that an objection be lodged with the Registrar of Patents in regard to an application for patenting a process for seasoning timber, and after taking legal opinion on the matter, the Chamber has decided to accept the recommendation in the interests of the mining industry, and the necessary steps are now being taken to oppose the granting of the application. During the period covered by this report the Executive Committee has dealt with questions of fencing as required by the Mining Law and the rights of claim-holders to water for mining purposes."

TOPICS OF THE WEEK.

MORE ABOUT STATE MINING.

It need hardly be feared that there will be any great revulsion of popular feeling in favour of State mining as a result of the evidence given before the Commission this week. Neither Professor Lehfeldt's refinements and analyses nor Mr. C. F. Tainton's perverted lucubrations are likely to convince the ordinary man that the Union Government ought to fly in the face of the best commercial opinion in the country and court trouble in the realm of gold mining speculation. The fact is, there is no popular demand for Government to embark on this risky form of enterprise at all; and this truth becomes plainer with every laboured attempt of amiable theorists and sophists to prove to a benighted public that it is "selling its birthright" or "alienating its heaven-given heritage"—and so on. This sort of appeal leaves us as cold as the argument from precedent. Because some State somewhere runs a mine without landing itself in the bankruptcy court, does not justify the Union taking similar risks. There are States that run all the pawnshops and all the public-houses, but we don't want to emulate them! Professor Lehfeldt's views on the effect of gold production on prices as an argument for procrastination strike us as particularly ill-chosen. Economics, of course, is not an exact science; and as Professor Lehfeldt knows, authorities differ profoundly regarding the effect of gold supply on prices. When he brought up the subject some time ago before the Chemical, Metallurgical and Mining Society, if we remember aright, very strong and influential opposition to his views was forthcoming. Moreover, Mr. H. Newhouse, in giving evidence later in the week, had little difficulty in showing that the trend of prices had not borne out Professor Lehfeldt's theory. Doubtless we are prejudiced in favour of clearness and plain speaking, for we find Mr. Newhouse's downright commonsense views very refreshing after the child-like idealism of the State Socialistic school. According to the published reports, Mr. Newhouse expressed the view that the Government would not be justified in undertaking State mining. Some of these areas offered very profitable spheres of enterprise for private people. His conception of the duties of the State was that it should not take any risks with the money of the ratepayers, especially where other sources were open to which the taxpayers' moneys could be devoted with a certainty of gain. The Government had no right, to his mind, to risk the taxpayers' money in undertakings of a speculative nature. After all, the moneys of the Government were limited, and these moneys could be better devoted to agricultural purposes and to the development of other resources of the country. Mr. Newhouse went on to give the reasons why he regarded mining on the Far East Rand as involving risks, and in support of his contentions stated that the payable areas were so scattered that they would require a large capital. There was no certainty of any of the areas being payable—it must all remain a gamble until they came to the reef. He wished, however, to make it quite clear that there were many mines on the Far East Rand which, when developed, would prove highly payable. The fact of the matter was that there was a good prospect for the whole area, but as far as each individual area was concerned he considered the risk too great for the State to incur. In the course of his examination, which occupied a whole morning, Mr. Newhouse had very much more of similar import to say, but enough has been quoted to show the unequivocal nature of his testimony. Mr. C. B. Kingston, the well-known technical adviser to Messrs. Lewis and Marks, also gave weighty evidence against State mining; and Dr. Mellor—a summary of whose evidence appeared in our last issue—has had too much experience of State methods to be otherwise than on the same side. The published reports of Dr. Wagner's evidence hardly do justice to his cautious and non-committal views—for instance, he disclaimed any opinion on the "adviseability" of State mining, however much it might be "feasible" if conducted on commercial lines. On the testimony of the other witnesses we hope to comment in our next issue. The upshot of the whole week's evidence is to bring out more clearly than ever that State mining would be at best merely a doubtful experiment. And assuredly this is not the time, nor is this the country, to embark upon doubtful experiments.

THE SPURT IN THE COAL INDUSTRY.

THE wonderful improvement that has taken place this year in the coal industry of the Union, necessitating increased demands on the collieries, railways and port facilities, and resulting in a big jump in the railway revenue, has been one of the most remarkable signs of the times. All this activity is, of course, due directly and immediately to the war; and the question is how the good fortune due to this transitory cause may be made permanent. The failure of the railways to anticipate the present state of affairs is, of course, the subject of severe comment in many quarters, and should the industry lose the opportunity now presenting itself, the fault will assuredly be with the railways. In a semi-official *apologie* for the latter, *The Star* pointed out recently that were there any hope of the present rate of activity remaining permanent, "the country would be justified in undertaking a big expenditure to provide thousands of trucks and more modern facilities at the ports, and the collieries would naturally respond with increased outputs. To-day the position is a complex one. It was impossible to be adequately supplied with railway trucks in anticipation of the demand, and even orders given by the Administration for additional stock have had to be delayed to meet the requirements of munition manufacture." It appears that fortunately portions of the orders have been met, and from the New Year up to September 30, 1914 40-ton trucks, 363 sheep trucks, and 260 cattle trucks were put into service. There are now over 27,000 trucks in service, and of these approximately 25,000 have been adapted to coal traffic. Fortunately for the demands on the Administration the maize traffic is not nearly so heavy as it was last year, and the falling off in the passenger service has enabled a number of engines to be released. Every day 3,000 tons of coal leave the Transvaal and Natal collieries for bunkering purposes, Table Bay, and the demand is increasing. The long pull to Capetown, involving practically a fortnight before trucks can be returned to the pit heads, is placing a big strain on the resources of the railway, and despite the fact that engines are being "worked to death," irritating delays occur in meeting the requirements of steamers. Within the last few weeks as many as 15 steamers were waiting at one port to get their bunkers filled, and notification has been received of heavy requirements this month and next. The number of tons of coal sold by the Union per month is now in the neighbourhood of 900,000, representing in cash nearly £245,000. August was a record with 875,718 tons, of which the Transvaal's contribution was 528,679, and this figure was increased in September-October to 540,000. During September 61,000 tons were bunkered at Capetown, which represents a big advance. The trade at Durban was well maintained, the Natal collieries producing 276,455 tons, as against 213,026 in September, 1915, and at Delagoa in September 60,000 tons were shipped, as against 49,000 in September twelve months ago. October and November will show greater activities at the ports, and by the end of the year the actual output of the collieries cannot be far short of a million tons of marketable coal per month. That Sir William Hays is well aware of the value of the present unique opportunity is shown in his last annual report, where he points out that "in comparison with some countries, South Africa's coal resources are small, but the present annual output is also insignificant compared with the total coal available. The coal industry has unlimited scope for development. The time is opportune for South African coal to gain an ascendancy on the African coast, both East and West, and on the eastern trade routes, and advantage is being taken of present opportunities as far as war exigencies permit. It, after the abatement of the present inflated demand for coal arising from the war and the consequent disturbance of shipping, new outlets can be found for South African coal, and certain of the temporarily diverted shipping can be induced to adhere to the Cape route, there should be very considerable development in the coal mining industry. The existence in South Africa of large quantities of coal of proved quality for steamship purposes should, as the coal becomes better known, be an influencing factor in deciding the route to be followed in the eastern trade and should encourage shipping to touch at Union ports and to engage in South African trade. Such a diversion of shipping would be of great importance to the Union and would open up new markets for South African products." This statement of the case can hardly be bettered. It only remains for the General Manager of the Railways to act upon it.

INDUSTRIAL UNREST.

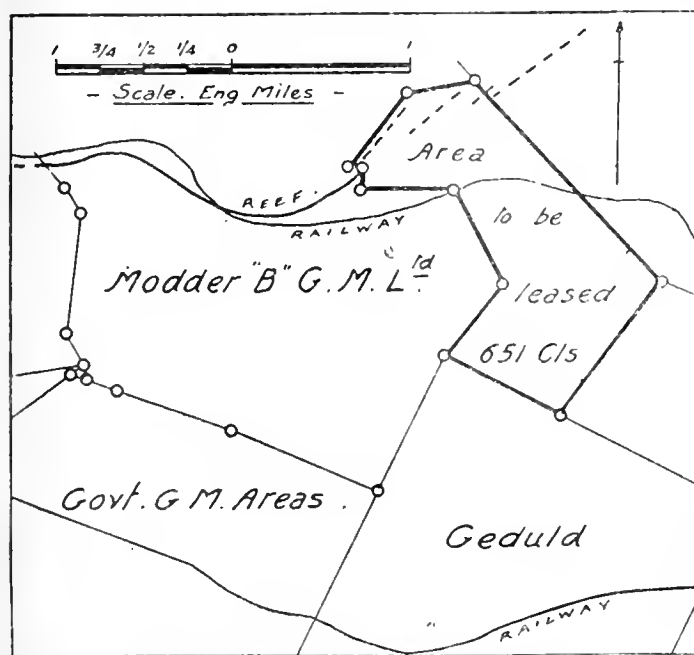
It is frequently asserted that the problem of industrial unrest is bound to become not less but more difficult when the war is over. Without attempting to discuss how far this may apply to South Africa, it may be useful to note the progress of the most advanced thought on the subject. The Economics and Statistics Section of the British Association recently turned its attention to the question, the basis of discussion being the report of a committee on means for the promotion of industrial harmony. The report, which was very long, considered the subject in three sections: The causes of industrial unrest, attempts at diminishing industrial unrest, and the Committee's recommendations. The causes were stated to be: (1) desire for a higher standard of living, (2) desire of the working people to exercise a greater control over their lives and to have some determining will as to the conditions of work, (3) the uncertainty of regular employment, (4) the monotony in employment, (5) suspicion and want of knowledge of economic conditions, (6) the complaint that some labour is irregular and less satisfactory, (7) the effects of war measures. Attempts at diminishing industrial unrest included conciliation and arbitration boards, arbitration (a) voluntary, (b) compulsory, profit-sharing and co-partnership, and co-operation. The summary of the report stated that the aim of the investigation was to discover certain general principles which must underlie a harmonious economic organisation. Before the problems of industrial unrest could be solved those principles must be applied to particular industries. With their special application the Committee did not deal, and the suggestions put forward included only broad principles possible of wide application. The recommendations might be divided into groups, as they concerned: The general attitude and outlook of employers and workmen; machinery for dealing with disputes; the organisation of industry; and post-war arrangements. The recommendations were thus summarised:—(1) (i) That there should be greater frankness between employers and workpeople, and that they should discuss industrial matters together or through duly accredited representatives. (ii) That employers should consider the cost of labour, and not the wages earned by individual workmen. (iii) That the fundamental facts and principles of industrial and economic life should be known by both. (2) (i) That employers and workpeople should improve their organisations with a view to determining jointly the conditions under which industries should be carried on. (ii) That in each industry permanent boards or committees be set up to consider all matters of common interest. (iii) That there be a joint national board to which local boards could refer unsettled disputes. (3) (i) That the necessity for co-operation between employers and employed be recognised by both. (ii) That employers establish: (a) Associations of one trade in a given district, (b) national associations of one trade, (c) local federations of trades, (d) national federations of trades, (b and d being organised under a system of representation.) That workpeople establish unions and federations corresponding to the above. (iii) From the two national federations there be elected an industrial council. (iv) That the State give recognition to approved associations, unions, and federations under carefully devised regulations, the State being the representative of the consumer and of the commodity. (4) (i) On demobilisation, that district boards of really practical men be established to consider and adjust difficulties, especially as to the replacement in industry of men who have joined the Forces. (ii) As to agreements and regulations in abeyance for the period of the war, the industrial community will have an opportunity for considerable reconstruction. The new organisation suggested should take this in hand. The danger is that these recommendations may be too general to be of practical value to a special industry like that of the Rand. But in so far as our post-war labour problems will be akin to those of the industrial world as a whole, a closer study of the report, whereof the above are merely the headings, may be advantageous.

THE PROPOSED NEW GOVERNMENT MINES.

Nine Tenders for Nearly Six Square Miles of Gold-Bearing Ground—Features of the New Applications.—Rand Klip and Cloverfield May Come In.

Our issue of August 19 contained the Government notices relating to the leases of mineral rights of a portion of the farm Modderfontein No. 17, district Boksburg, in extent 651 claims, and of those of a portion of the farm Brakpan No. 16 in the same district, in extent 1,812 claims. It is officially announced that five offers have been made for the first area, and four for the Brakpan ground. These leases will be made in accordance with Sections 46 and 52 of Act No. 35 of the Transvaal, which specify the conditions under which the Governor-General may lease public diggings. The accompanying diagrams show the respective areas referred to in the notices, and it may be pointed out again, that in the case of the Brakpan area the ground does not include the Schapenrust claims, but only that 1,811·7 or 1,812 claims on Brakpan itself. A circumstance that is particularly interesting in connection with these leases, in view of the discussion which has taken place before the Select Committee on East Rand Gold-Bearing Areas, is the absence of any definite provision for a minimum sliding scale of profit sharing between the Government and the lessee. This specified minimum sliding scale has, of course, been one of the principal and essential features of previous lease conditions, and has obviously been the rock upon which all

district. The nature of the risk which attaches to any mining venture, and, to some extent, its limits, have been made susceptible of a rough estimate. For example, the somewhat disconcerting results which were obtained in the first stages of development at the Brakpan Mines have long since been shown to be due to a process of ore and gold distribution which appears to follow certain intelligible and more or less consistent laws. In consequence of this, that portion of the farm Brakpan which is now being put up for tender, and which, at the period referred to, would have been looked upon as an altogether problematical and hazardous proposition, is possibly regarded in a very different light to-day. There is still a risk, of course, but it is not an indefinite one to those who understand the geological conditions. As we pointed out before, not only have economic factors of this kind been the subject of fruitful enquiry, but the working of the lease system as applied to the Government Gold Mining Areas (Modderfontein), Ltd., has provided

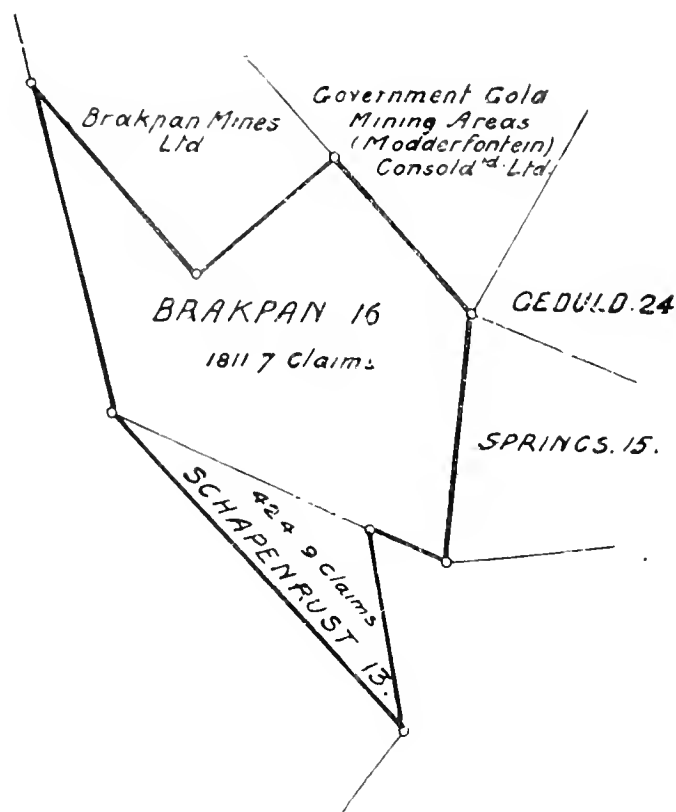


GOVERNMENT LEASE, MODDERFONTEIN No. 17.

attempts to secure tenders, except in the initial instance of the Modderfontein Government Areas, have suffered shipwreck. In the present notices the applicant is invited to state what percentage of the profits he is prepared to pay to the Government, and it is merely suggested that such percentage should preferably be in the form of a sliding scale, rising with the ratio of profit to recovery. In addition the leases will be subject to any taxation that is now, or may hereafter be, imposed by statute on mining. That is to say, the ordinary 10 per cent. profits tax, which was waived in accordance with Sub-section (2) (d) (since repealed) of Section 46 of Act 35 of 1908, will be payable in respect of net profits obtained from the areas in question.

THE QUESTION OF PRECEDENT.

Earlier endeavours to find lessees for Government gold areas were made when the geological characteristics of the Far East Rand were not nearly so well known as they are to-day. The mining operations at Brakpan and the investigations of Dr. Mellor, on behalf of the Mines Department have tended to establish certain facts which are of considerable importance in relation to the economic prospects of that



a useful fund of experience which may be drawn upon in the matter of the areas now under review. The sound features of the sliding scale and the difficulties of the super-tax have become sufficiently obvious, and the tenders now made may be expected to avoid the pitfalls of the one while making the best use of the other. From all points of view, therefore, it may be concluded that the offers that are made to the Government will be based on reliable working results and a useful knowledge of the peculiarities of the Far East Rand, and will be very different from the purely speculative tender that was more or less unavoidable in the case of the Barnato undertaking. It would seem that the point to be settled now is whether the sliding scale idea which is favoured by the Government Mining Engineer will be allowed to prevail or whether another method of profit sharing will be adopted. In the case of the Modder area, it is expected that one tender will embrace the inclusion of the Rand Klip and Cloverfield areas in a big working unit.

THE WEEK IN THE SHAREMARKET.

Dulness the Feature—General Decline in Favourite Speculative Stocks.

THE market closed firm on Friday with an improvement in Government Areas, which recovered to 54s. On Saturday prices, when not unchanged, were generally better, the one exception being Rand Klips, which eased off, while the companion stock, Cloverfields, made a further advance. Van Ryn Deeps, Rand Selections, New Eras, Government Areas, Consolidated Langlaagtes, City and Suburbans, Brakpans and Consolidated Mines Selections were all to the good. The Modder trio again passed without business. The market opened firm on Monday, but business was again restricted. Government Areas were unchanged; all the Modders passed without any actual transactions; Brakpans, Main Reefs, East Rand mining, Kleinfonteins, Sallies, Sub Nigels, Springs, Van Ryn Deeps were all better. Gedulds eased off; African Farms only came in for a tentative buying bid well under Saturday's rates. A parcel of 1,500 Zai-plaats changed hands at 7s., and there are evidently more to be had at the price. On Tuesday morning business at the call was very restricted. With the exception of one good order in Brakpans, the total output would only have amounted to a moderate day's work for the average broker. Out of fifteen sales nine were in stocks under par. Government Areas did not even produce a single sale. Van Ryn Deeps and Springs were easier; Gedulds, Kleinfonteins and Sub Nigels unchanged. Calls on Government Areas were offered at 3s. on 53s. 6d. sixty days, but 2s. 6d. was the best bid forthcoming. After change business brightened up somewhat and Knight Centrals advanced. Enquiries are again being made for Daggafontein new shares and options. Things were duller than ever at Wednesday's call, actual business being limited to dealings in twelve stocks. Brakpans, which had eased off yesterday afternoon, firmed up again and there were buyers in advance of the previous big sale. Knight Centrals were also decidedly better. Smaller advances were made in City and Suburbans, East Rands, Modder Deeps, and S.A. Lands, the latter on a report of the purchase of some adjoining property and a prospective sale of a portion of their own holdings. The provisional agreement in regard to Cloverfields and Rand Klips does not, it is said, show any margin of profit at present prices. The last-named stock felt the effect of this report. Government Areas, Gedulds, Springs and Sub Nigels were unchanged, but Van Ryn Deeps were lower. There was very little alteration in prices throughout the day, but Springs and Government Areas were both somewhat easier at the close. Thursday brought no improvement, except in City and Suburbans, which were fractionally higher on buying offers. On the other hand, Springs, Sub Nigels and Government Areas came decidedly weaker. In outside stocks the ruling prices are Antimony, 1s. sales; New Daggafonteins, 21s. 6d. to 25s.; Options, 10s. 3d. to 10s. 6d.; New Farms and Verdites, both 1s. 6d. buyers; Henderson's Options, 1s. 3d. The week has been one of unusual dulness, with a general decline in the favourite speculative stocks.

On Thursday afternoon the market eased off with sales of Springs Mines at 61s. 9d. and Government Areas at 51s. 9d. and 52s. City and Suburbans made 38s. 6d. On Friday morning there was more activity and a larger number of transactions. The following sales were booked: African Farms 7s. 9d., Brakpans 90s. 6d., Mines Selections 22s. 3d. and 22s. 6d., Main Reef 18s. 6d., Cloverfields 9s. 7d., Government Areas 52s. and 52s. 3d. and closing buyers at the higher figure, Knight Centrals 11s. 3d.; New Eras 9s. 6d., Kleinfonteins 26s. 3d., Rand Klips 9s. 6d.; Rand Selections 71s. 6d., Randfontein Deeps 1s. 3d., United Mines 10s. 3d., Sub Nigels 26s., Springs 62s., Van Ryn Deeps 69s. 6d., Village Deeps 30s. 3d., and Wit. Deeps 22s. New Modders were none too strong at £19 2s. 6d. sellers; Glynn's Lydenburgs from 15s. 6d. buyers came back to 15s. 3d. sellers, the only offer being 14s. 3d. A parcel of Government Areas was offered at 52s. 6d. thirty days h.o. The price was offered and refused for a sixty day option.

| | Fri., 27th. | Sat., 28th. | Mon., 30th. | Tues., 31st. | Wed., 1st. | Thurs., 2nd. |
|--------------------------|----------------|----------------|----------------|-----------------|---------------|-----------------|
| African Farms | 8 0 | 7 9* | 7 3* | 7 9* | 7 9* | 7 9* |
| Apex Mines | 5 9* | 6 0* | 6 0* | 6 0* | 6 0* | 6 0* |
| Aurora Wests | 14 6* | 14 3* | 14 6* | — | — | — |
| Bantjes Cons. | 14 2 | 14 3* | 14 3* | 14 2* | 14 3* | 14 3* |
| Brakpan Mines | 87 6* | 89 0* | 90 0 | 90 0 | 90 6 | — |
| Breyten Collieries | 20 0* | 20 0* | 20 0* | — | 20 0 | — |
| Brick and Potteries | — | 5 0* | — | 5 0* | 5 0* | — |
| Cinderella Cons. | 6 0* | 6 0* | 6 0* | — | 6 6* | — |
| City and Suburbans | 36 0* | 36 6* | 36 3* | 36 6* | 36 9* | 37 0* |
| City Deeps | 35 6 | 35 6 | — | 35 3 | 35 0* | 35 0* |
| Cloverfield Mines | 10 1* | 10 3 | 10 3 | 10 3 | 10 3* | 9 7* |
| Clydesdale Collieries | 13 0* | 13 0* | 13 0* | 13 0* | — | — |
| Concrete Construction | 2 9* | 2 9* | 2 9* | 2 9* | — | — |
| Cons. Investment | — | 20 0* | — | — | 19 0* | 18 6* |
| Cons. Langlaagtes | 29 6* | 30 0 | 30 0* | 29 9 | 30 0* | 30 0* |
| Cons. Main Reefs | — | 18 6* | 19 0* | 19 0* | 19 0* | 18 6* |
| Cons. Mines Selection | 20 0* | 22 6 | 22 9 | 22 0* | 22 6* | 22 0* |
| Coronation Collieries | 30 0* | — | — | — | 30 6* | 30 0* |
| Coronation Syndicates | — | 3 0* | — | — | — | — |
| Crown Mines | 57 0* | 57 6* | 57 6* | 57 6* | — | — |
| East Rand Centrals | 8 6 | 8 6* | 8 6* | 8 9 | 8 6* | 8 6* |
| East Rand Coals | 2 8 | 2 9 | 2 10 | 2 9* | 2 9 | 2 9* |
| East Rand Deeps | 1 2 | 1 2 | 1 2* | 1 2* | 1 2* | 1 2* |
| East Rand Mining Estates | 18 0* | 18 0* | 18 3* | 18 0 | — | 17 0* |
| East Rand Props. | 16 0* | 16 0 | 16 0* | 16 0 | 16 3* | 16 6* |
| Eastern Gold Mines | 1 6* | — | 1 6* | 1 6* | 1 6* | 1 6* |
| Ferreira Deeps | 30 0* | — | — | 30 0* | 30 0* | 30 0* |
| Frank Smith Diamonds | 3 7 | 3 6* | 4 0* | 3 7* | 3 6 | 3 6 |
| Geduld Props. | 44 9 | 44 9 | 44 3* | 44 6* | 44 6* | 44 6* |
| Geldenhuis Deeps | — | — | 25 0* | 25 0* | 25 0* | 25 0* |
| Glencoe Collieries | 9 0* | 9 0* | 9 0* | 9 0* | 9 0* | 9 0* |
| Glynn's Lydenburgs | 15 6* | 15 6* | 15 6* | 15 6* | 15 6* | 15 6* |
| Government Areas | 53 6 | 54 3 | 54 0 | 53 6* | 53 6* | 52 6 |
| Jupiters | 8 3 | 8 2 | 8 1* | 8 2* | 8 1* | 8 0* |
| Klerksdorp Props. | 2 7* | 2 6* | 2 7* | 2 7* | 2 7* | 2 7* |
| Knight Centrals | 10 6 | 10 8 | 10 8* | 10 9 | 11 6 | 11 6* |
| Lace Props. | 5 6* | 5 9 | 5 9* | 5 9 | 5 9* | 5 9* |
| Lydenburg Farms | 7 6* | — | 7 6* | — | 7 6* | 7 3* |
| Main Reef Wests | 5 7* | 5 6* | 5 6* | — | 5 5 | 5 3* |
| Meyer and Charltons | 100 0* | — | 102 6* | 103 9* | — | 105 0 |
| Middelkloof Estates | 1 6* | — | 1 6* | 1 1* | 1 1* | 1 1* |
| Modderfontein B. | 137 6* | 137 0* | 137 0* | 137 6* | 137 6* | 138 0 |
| Modder Deep Levels | 146 0* | 146 0* | 147 0* | — | 146 0* | 146 0 |
| Leeuwpoot Tins | 14 0* | 14 0* | 14 0* | — | 14 0* | — |
| Natal Navigation Colls. | 18 0* | 18 0* | 18 0* | 18 0* | 18 3* | 18 6* |
| New Boksburgs | 1 6* | — | — | — | — | — |
| New Eland Diamonds | 19 6* | — | 19 0* | — | — | 19 6* |
| New Era Cons. | 9 3* | 9 6* | 9 7 | 9 6* | 9 6* | 9 7* |
| New Geduld Deeps | 6 2 | 6 1* | 6 0* | 6 2 | 6 1* | 6 0* |
| New Gochs | — | 7 0* | — | — | — | — |
| New Herolds | 52 6* | 52 6* | — | — | — | 52 0* |
| New Kleinfonteins | 26 3 | 26 3 | 26 3* | 26 3* | 26 3* | 26 0* |
| New Modderfonteins | 385 0* | — | — | — | 360 0* | — |
| New Rietfonteins | 0 6* | 0 9* | 0 9* | — | 0 9* | 0 6* |
| New Unifeds | 11 0* | 11 0* | 11 0* | 11 0* | — | — |
| Nourse Mines | 23 0* | 22 9* | 22 6* | 23 0* | 22 6* | 23 6* |
| Pretoria Cements | 79 0* | 79 6 | 78 6* | 78 6* | 78 6* | 78 0* |
| Princess Estates | — | — | — | 1 6* | 1 6* | 1 6* |
| Rand Klips | 9 8 | 9 6 | 9 7 | 9 9 | 9 6 | 9 7 |
| Rand Nucleus | 1 7 | 1 6* | 1 7 | 1 8 | 1 8 | 1 8* |
| Randfontein Deeps | 4 4 | 4 4* | 4 3* | 4 0* | 4 3 | 4 2* |
| Randfontein Estates | 14 0* | — | 13 9* | 14 0* | 13 9* | — |
| Rooiberg Minerals | 11 3 | 11 3 | 11 0 | 11 3 | 11 0 | 11 6 |
| Roodepoort Uniteds | 10 6 | 11 0 | — | — | — | 11 0 |
| Ryan Nigels | — | 2 6* | — | — | 2 6* | 2 6* |
| Shebas | — | 2 3* | 2 6* | 2 6* | — | — |
| Summer Deeps | 4 4 | 4 3* | 4 5* | 4 0* | 4 6* | 4 4* |
| S.A. Lands | 4 10* | 4 10 | 5 2 | 5 1* | 5 4 | 5 2* |
| Springs Mines | 63 6 | 63 0* | 63 9 | 63 3 | 63 3 | 62 0 |
| Sub Nigels | 25 9* | 26 8 | 26 4* | 26 3 | 26 3 | 25 9* |
| Rand Selections | 70 0* | 71 6 | 71 6* | — | 71 6* | 71 6* |
| Transvaal Lands | 17 3* | 17 3* | 17 3* | 17 3* | — | — |
| Transvaal G.M. Estates | 18 6 | 18 6* | 18 6* | 18 6* | 18 6* | 19 0* |
| Van Ryn Deeps | 60 3* | 70 0 | 70 6* | 70 3 | 69 3* | 69 6 |
| Village Deeps | 29 3 | 29 6* | 30 6* | 30 0* | 30 0* | 30 0* |
| Village Main Reef | 18 6* | 18 6* | 18 6* | — | — | — |
| Vogelstruis Cons. Deeps | 1 6* | 1 6* | 2 0* | 1 6* | 1 6* | 1 6 |
| Welgedachts | — | 32 6* | — | 32 6* | — | — |
| Western Rand Estates | 1 6 | 1 6* | 1 6 | 1 6* | 1 6* | 1 6* |
| Witbank Collieries | 42 6 | 42 0* | 42 0* | 42 6* | 42 6* | 42 0* |
| Witwatersrand | 56 0* | 52 6* | 53 0* | 53 0* | 53 0* | 52 6* |
| Witwatersrand Deeps | — | — | 23 0* | — | — | 22 0* |
| Wolhuters | 11 4 | 11 3* | 11 3 | 11 6* | 9 0* | 9 9 |
| Zaiplaats Tins | 6 6* | 6 6 | 7 0 | 6 6* | 6 6* | 6 6* |

*Buyers. Sellers. *Odd lots. BEx London.

There were buyers of Union 5 per cents, daily at £101 11s. 3d., £101 11s. 3d., £101 11s. 3d., £99 1s. 3d., and £99 10s. 3d.

FINANCE AFTER THE WAR.

Some Suggestions.—I.—The Need for New Methods.

By H. WILSON-FOX.

Our *laissez-faire* system of State policy is nowhere more conspicuous than in the domain of national finance, where we have passed long since into the groove of tradition. We have been content to travel the old ways from generation to generation and our vision has become obscured. It is time for us to lift our eyes, survey our surroundings, and look where our course is leading us. We should ask ourselves if we must still continue to tread the same paths, and if we are content to trudge along them sorrowfully, bearing the heavy burdens which the great war is imposing on us with resignation and acquiescence, soothed by comforting reflections as to the elevating influence of poverty upon national character? But, do we really believe this sorry comfort? and ought we to wish to believe it? Should we not frankly admit that diminution of national prosperity is an evil, not a blessing; brace ourselves to new efforts; and set ourselves to discover means to minimize the injurious effects of the war during the period which must elapse before our lost stores of wealth can be replaced?

NEED WE BE POOR?

The war, moreover, through the irony of fate, has given us a striking object-lesson as to the beneficent effects of prosperity upon the well-being of the poorer sections of the community. It has shown us that there is no real reason why an unemployable class should find a place in our social system, and that increased earnings spell empty wards in workhouses and hospitals. In face of these facts are we content with a financial policy which involves the prospect, indeed the certainty, of return to the old, and possibly far worse, conditions? If not, we must face the position, and also realize, that unless we adopt entirely new methods, the grinding taxation which will press upon us during the next 25 years at least, will reproduce in an accentuated form those social conditions from which we have suffered in the past, largely as the result of want of imagination, conviction, and method in the conduct of State affairs. So far our Government has shown no evidence of any desire or intention to try new methods. Taxation has already been increased to an extent which before the war would have been considered inconceivable. It has been hinted that further taxes are under consideration; while on each occasion when new taxation is imposed the Minister who proposes it is lauded for his courage—save the mark! The gods help those who help themselves. Is it not time for to ask ourselves if there is no better way? Resignation will not help us; but inquiry, foresight, and action may possibly bring relief.

OUR FINANCIAL POSITION.

As a preliminary to such inquiry let us consider in the first place what our financial position is. The task is comparatively easy because the figures of our war finance have recently been presented in a convenient form in an illuminating paper contributed by Sir George Paish to the Royal Statistical Society. The following summary of our position is based upon this paper, and covers the period ending March 31, 1917. The figures given are therefore partly actual and partly estimated. The extent to which taxation has been increased is shown by comparison of the national revenue for the year ended March 31, 1914, with the estimated revenue for the current year:—

| | |
|---------------------------------------|--------------|
| Revenue for year ended March 31, 1914 | £198,243,000 |
| Ditto (estimated), 1917 | 495,752,000 |

Increase £301,032,000

Sir George Paish estimates the total war expenditure up to March 31, 1917, at £3,777,000,000. This amount will, he states, have been provided as follows:—

| | |
|---------------------|---------------|
| Paid out of Revenue | £712,000,000 |
| Provided by Loans | 3,065,000,000 |

Total £3,777,000,000

It would appear from these figures that of the capital cost of the war to March 31, 1917, £712,000,000 will have been met out of income. It must, however, be pointed out that the estimate of war expenditure includes—(a) The whole cost during the war of the Army and Navy, on which about £80,000,000 was spent in the year 1913-14, and which, on the same peace basis, would have absorbed £213,000,000 during the war period; (b) the whole of the interest on war loans, which may be roughly estimated at £200,000,000. Deducting these amounts, we arrive at a net figure of about £300,000,000 as the proportion of the capital cost of the war which will have been paid out of revenue at March 31, 1917. It must also be noted that as against the figure of £3,065,000,000 at which our loans are estimated to stand at March 31, 1917, Sir George Paish states that an amount of £818,000,000 will have been lent at that date to our Allies and the Dominions. But the war is not over, and the cost of clearing up after it, which must necessarily extend over a long period, will certainly be considerable. If, therefore, it is desired to forecast in rough fashion our position after the war, I do not think that it is safe to estimate on a net addition to our permanent National Debt of less than £3,500,000,000, even if our loans to our Allies and Dominions are taken into account. Should the amount prove to be less, so much the better. Assuming interest at 5 per cent., and sinking fund at 1 per cent., the annual charge on the above figure would be £210,000,000. Taking into account that the normal combined expenditure on the Army and Navy will probably remain at a considerably higher figure for many years than the pre-war figure of £80,000,000, and that heavy payments will have to be made for war pensions and allowances, I arrive at the following rough estimate of the probable annual expenditure during the years immediately following the conclusion of peace:—

Per annum.

| | |
|---|--------------|
| Post War Services, including interest and sinking fund on old National Debt, increased expenditure on Army and Navy and War Pensions and allowances | £520,000,000 |
| Service of War Debt | 210,000,000 |
| | £460,000,000 |

It will be seen that this sum is only £35,000,000 less than the estimate of national revenue for the present year, during which abnormal yields of taxation are contemplated, owing to the facts that—(a) The aggregate income of taxpayers is temporarily swollen as the result of our gigantic war expenditure; (b) the revenue includes receipts from an Excess Profits tax which cannot be maintained indefinitely in its present form. If the Sinking Fund on the pre-war debt be taken at £5,000,000 and on the new War Debt at £35,000,000, a total amount of £40,000,000 will have to be devoted annually to the reduction of the debt. It may, moreover, be admitted that, if no other means can be found for discharging it, an amount of £40,000,000 would be the minimum annual provision which should be made.

THE BURDEN OF TAXATION.

The figures show that, unless some radical change can be made in our system of finance, the pressure of taxation upon the inhabitants of this country will be so severe for at least a generation as to rob the majority of them of many of the opportunities and enjoyments of life, and to retard that expansion of production without which this serious position must continue indefinitely. It is imperative, therefore, to find if it be possible, some means of escape from the doom of poverty and depression with which we are threatened. It such means exist we should not lightly disregard them. Guidance may possibly be found in the assumed conduct of an individual in similar circumstances. When an active business man becomes involved in debt through

*From *The Times*.

causes over which he has no control, but still possesses a comfortable income, good credit, and undeveloped resources, he has two courses open to him. He can either sell such assets as he can dispose of, reduce his debts and pay off the balance out of income, living meanwhile a crippled existence; or he can use his credit, and by intelligent application of his brains, energy, and resources create new wealth with which to discharge his liabilities. If he chooses the second course with good prospect of success, there is no necessity for him to alter his mode of life materially, or to sacrifice the prospects of his children by enforced economy. Acceptance of the first alternative would, moreover, imply want of either spirit or capacity.

THE EMPIRE'S ESTATE.

The choice with which the nation is now confronted is somewhat similar. The British Empire is the owner of the finest undeveloped estate which has ever been known in the history of the world, an estate which is unique in its world-wide distribution and in the variety and value of its products. Markets and means of transportation are on an unprecedented scale, while science is daily becoming a more valuable handmaid of productive industry. We still possess the credit with which to develop our resources. Can it be right in such circumstances to continue to pursue a purely passive State policy, and to allow all our national resources to be dealt with by individuals in a haphazard and unco-ordinated manner without regard to State needs and State opportunities? It certainly cannot be right to assume that what is must be, and that directions in which State capital and management can be employed directly with advantage for the production of wealth cannot be found. There is, moreover, no question of any sacrifice of principle. We have merely to decide what is worth while. We have to ask, Is it possible to embark upon great productive undertakings which will pay under State management to such an extent that money which would otherwise be devoted to paying off a portion of the National Debt would be better employed in prosecuting them? Is it possible by action of this character to provide for the extinction during an extended period of a greater proportion of the National Debt than would occur if the money proposed to be so employed were applied directly to cancellation of debt? A classic and successful example of such a State policy is our purchase in 1875 of Suez Canal shares to the value of £1,000,000. These shares have continued year in and year out to pay interest on a debt to a considerably greater amount than £1,000,000 paid for them; and, apart from their value from a political and strategic point of view, would, if sold to-day, realize some £30,000,000. In this case, therefore, it was clearly good business for the State to invest a sum of £1,000,000 in shares in preference to employing it for the immediate discharge of debt. In this transaction commercial considerations occupied a subordinate place; but there seems to be no reason in principle why, in other cases, State funds should not be invested similarly to secure exclusively or mainly, commercial objects. It is often said that we ought not to saddle posterity with the liquidation of our debts, and that our duty to those who will succeed us demands from us the sacrifice of saving, for the purpose of leaving to them a less encumbered heritage. Matters of this nature cannot, however, be decided by maxims, nor can our duty be ascertained in this simple manner. Granted that we wish to do our best for posterity, there is room for wide differences of view as to what is best to be done. The point is that freedom from debt may be purchased too dearly. If it can only be secured at the cost of creating a population which has been ill-nourished for a generation, and has been deprived of many of the opportunities and amenities of life so far from benefiting posterity by our unselfish action, we shall have done it a positive disservice, and our self-sacrifice

will have been in vain. Our real duty to posterity lies in living for it, in concentrating our faculties upon the task of extending and improving the productive capacity of our Empire, and in utilizing for this purpose to the fullest extent both our credit and our natural resources. Posterity will start from a higher level if its parents are not hampered by poverty.

REDUCE TAXATION AND ENCOURAGE PRODUCTION.

Definite suggestions will be made in a second article in regard to directions in which favourable opportunities for investment may be sought, as to the limits within which State enterprise of this character should be confined, and as to the organization which will be needed for its successful prosecution. Meantime, it may be pointed out that if, after full inquiry, it should be decided to embark on such a policy on a scale commensurate with our opportunities and needs, it will be possible to deal with the post-war financial situation on entirely new lines, and to free the minds of our generation from a heavy burden of depression which, if unrelieved, will certainly have the effect of restricting enterprise at a time when the need to stimulate it was never more pressing. If a financial policy such as has been suggested can be followed with good prospect of success, the State should aim at reduction of the post-war taxation to the utmost possible extent, in order to encourage productive industry during the coming critical years of reconstruction, while new relations between Labour and Capital are being established, and new solutions are being found for the majority of our social problems. A period of acute distress would make this great task of reconstruction far more difficult, and we ought not to impose it upon ourselves by blind adherence to financial traditions which are not necessary applicable to present circumstances. If it should appear that to pay our way and discharge our State responsibilities will require a post-war income of £460,000,000 per year and that a policy such as is suggested is practicable, a portion of the £460,000,000 needed—say, £100,000,000 or £150,000,000 per annum—might be borrowed and added to the war debt during a period of, say, five years, so that the strain of taxation may be relieved during the time when it will be felt most keenly. The test of right action in these matters is solely national advantage, and if that be secured we need not concern ourselves over-much with financial maxims, which have been useful guides in circumstances that have been wholly different from those with which we are now called upon to deal. What we mainly need now are open minds, knowledge of facts, and good judgment. Given these, we need be under no anxiety in regard to our future.

Death of Dr. George Turner.

We regret to announce the death of Dr. George Albert Turner, which took place last week. He was the son of the late Sir George Turner, a distinguished sanitarian, who was formerly Medical Officer for the Cape Colony and afterwards for the Transvaal and who died about a year ago from leprosy contracted in connection with his official duties in Pretoria. Dr. George Turner, who was 41 years of age, graduated M.B., etc., at Aberdeen in 1897 and obtained a diploma in public health at the same university in 1898. He came to South Africa immediately afterwards and until the outbreak of the Boer War was Assistant Medical Officer to the Grahamstown Lunatic Asylum. He served through the war as surgeon-captain in Marshall's Horse and at the end of 1901 was appointed Acting M.O.H. for Johannesburg. In May, 1902, he took over the duties of additional district surgeon and port medical officer at Capetown, and in 1904 became medical officer of health to the Kimberley Board of Health. In the following year he was selected for the important position of medical officer to the Witwatersrand Native Labour Association, Ltd., and in the course of his exacting duties had to deal with many thousands of natives annually. He was sent by the Association to investigate the habits, customs and diseases of the Portuguese East African natives in their kraals, and at a later date proceeded to British East Africa to investigate sleeping sickness in the districts west of that territory. He acquired an intimate knowledge of the natives and their ailments, which was unique. In 1908 he secured the Craig Scholarship of the London School of Tropical Medicine for a monograph on "The Intestinal Parasites of South African Natives." He was also the author of a valuable contribution on the diet of South African natives in their kraals and of an extremely interesting report embodying the results of his inquiries amongst the Portuguese East African natives. Unfortunately, however, in connection with this work he contracted malaria, which recently assumed an aggravated form, and led to his early and lamented death last week.

THE PROPOSED BRITISH TRADE BANK.

More Points from the Report of the Committee.

THE Committee which was appointed by the Board of Trade some months ago to investigate the question of financial facilities for assisting British trade after the war, has acted with businesslike promptitude in reporting its conclusions and making its recommendations, some of which appeared in a recent issue. It will be remembered that Mr. Runciman, in the House of Commons, referred to the possibility of "additional institutions" having to be set up if the existing banking institutions found it impracticable to handle more extensively what we have for years come to know as industrial banking business. It was therefore as well that so many banking authorities and financiers were members of the Committee. The recommendations that they make are so framed as to aim at the better support of British enterprise in after-the-war competition with the enemy. It is proposed that a British Trade Bank, under Royal Charter, be formed without delay, so that the preliminaries may be completed before the war is over, and that its operations be especially conducted with a view to assisting our overseas trade. It is considered that it will not unduly interfere with existing banks, banking houses, or financial institutions, but will fill a gap between the home banks and the colonial and British foreign banks and banking houses, and will develop facilities not provided by the present systems. In addition to the points we recently printed from the report, it is noteworthy that the Committee considers it desirable that the British Trade Bank should receive as much official recognition as possible without coming under Government control: "Our Foreign Office should, for instance, be asked to instruct British Embassies and Legations abroad to put the institution's representatives in contact with all commercial attachés, consuls, etc., with clear instructions to them that the institution is a commercial concern enjoying the full confidence and approval of the Government; and similar instructions should be given by the Board of Trade to their Trade Commissioners in the Dominions." The Committee did not consider it necessary to take much evidence, as that which had been put before other Committees, which have not yet reported on their trades, on the same subject, was put at its disposal. The report contains the following statements:—

It is desirable that we should state clearly our definitions of banking facilities in the British sense, and of what we would call by the wider name of financial facilities. The former are properly limited to those which can be provided without a "lock-up" such as would impair the liquidity of funds and deposits at call and short notice. For this

reason the usual practice of bankers here is to confine their advances as a rule to a currency not exceeding a few months. By financial facilities we mean, generally speaking, those which would involve a longer currency than this. A careful study of the evidence above referred to, and our own knowledge of banking arrangements and facilities, lead us to the conclusion that there exists to a considerable extent at the present time in this country the machinery and facilities for the finance alike of home trade and of large overseas contracts, and for carrying through much of the business which has been done by foreign banks. The British banks afford, we believe, liberal accommodation to the home producer. British bankers are not shy in making advances on the strength of their customers' known ability and integrity, and the charges for accommodation are, we believe, often lower than the corresponding charges in foreign countries. Similarly, the Colonial banks and British foreign banks and banking houses render immense assistance to British trade abroad, and certainly in the Far East, and in many parts of South America British banking facilities do not fall short of those of any other nation. We find also that in the case of large contract operations British contractors, with the assistance of financial houses, have in the past been ready to provide large amounts of capital and to take considerable risks in connection with the operations which they have undertaken. Our arrangements, however, are faulty in our not co-ordinating many of the facilities mentioned in the previous paragraph. We recognise also that the British manufacturer may be frequently in want of finance of a kind which a British joint stock bank with liabilities as above described could not prudently provide, whereas the German banks in particular seem to have been able to afford special assistance at the inception of undertakings of the most varied description, and to have laid themselves out for stimulating their promotion and for carrying them through to a successful completion. We conclude, therefore, that there is ample room for an institution which, while not interfering unduly with the ordinary business done by the British joint stock banks, by Colonial banks, and by British foreign banks and banking houses, would be able to assist British interests in a manner that is not possible under existing conditions. Such an institution might in many ways be beneficial to the development of British industry and manufactures. It might, in certain cases, after careful examination, agree to make advances for the extension of existing manufacturing plant, or perhaps for the amalgamation or co-ordination of certain works, so as to reduce the cost of production. It would assist these works to obtain orders abroad, and give them reasonable financial facilities for executing these orders. It should give a preference in matters of finance to orders which are to be executed in this country. Such an institution could also take a leading part in the

BROAD ROBERTS & DODD, C/o Von Brandis & Bree Streets, JOHANNESBURG.

Mathematical Instrument and Mechanical Accessories Works.

Electrical and Surveying Instruments. Motor Engine Parts. Magnetos.
Meters and Gauges. Munitions. Mica and Emery Manufactory.
All Classes of Light Engineering Work.

Phone 2524.

Box 4777.

MINING INSTITUTE.

TEACHING CENTRES: JOHANNESBURG AND WITBANK.

Prof. YATES prepares candidates for the following Government

Certificates:—
MINE MANAGER'S. MECHANICAL ENGINEER'S.
MINE OVERSEER'S. ELECTRICAL ENGINEER'S.
MINE SURVEYER'S.

By Class, Private Tuition and Correspondence.

The aggregate percentage passes for the OVER 200 SUCCESSES.
combined classes is nearly 80% St. James' Mansions, Eloff St.

Waterman's Ideal Fountain Pen

This Simple Filling Device

is embodied in the World's Best Fountain Pen, Waterman's Ideal, and the type is known as the Lever Pocket Self-Filler. It is simplicity itself. Raise the Lever, immerse nib in ink, lower Lever again, and the pen is filled.

Of Stationers and Jewellers everywhere

L. G. Sloan, The Pen Corner
London, England.

inception of transactions and assist in connection with the machinery of overseas business. In the case of German manufacturers it frequently happens that on the board of the manufacturing company there is a representative of a bank, and there seems little doubt from an examination of the information which is available that the German banks have exercised an amount of control over the manufacturing concerns in which they are interested, which would not be possible, even if it were desirable, in the United Kingdom. A large number of our manufacturing undertakings are wealthy concerns, and would not tolerate for one moment interference by bankers in their affairs, and, indeed, would probably resent any inquiry into the nature of their business arrangements. Such manufacturing concerns, however, do require assistance when they transact overseas business. Take as a single instance the case of a Midland manufacturer selling goods to Italy. The Italian buyer has been accustomed to long credit, and if long credit is refused the business will probably be impossible. The manufacturer sells goods for, say, £50,000, and the payment of that price would leave him with a considerable margin of profit, but the offer of the Italian buyer to pay him the equivalent of £50,000 in lire at six or twelve months is not attractive. He would much rather accept a lower figure than £50,000 for a clean cash transaction in sterling, and it is in connection with such business as this that an institution of the kind contemplated would be liable to act as intermediary (taking part of the whole of the financial liability) with profit to itself and satisfaction to the manufacturer. Or to take another case, that of a contractor who has entered into a contract with a foreign Government, payment being made as works proceeded, such payment being possibly in paper in a foreign currency, the contractor in that circumstance would willingly share his profit with an institution which would be responsible for the finance of the securities receivable by him. It would be essential in conducting business with manufacturers and merchants, that the institution should draw and accept bills, and it should generally be in a position to undertake credit operations. It might be well to provide that a certain portion of uncalled capital, or a portion of paid up capital (if it is deemed wise to have all called up) should be reserved against this class of risk. If an institution is formed to carry out transactions of the kinds indicated above, it follows that it must be equipped with knowledge of affairs in the countries with which it may do business, and its managers must, by personal visits, acquaint themselves with the conditions of business in all important foreign centres. It must have either branches or agencies in those countries, and in this connection the exceptional position held by British-foreign and Colonial banks should be fully availed of. Instead of having to organise, as was the case with German banks, new subsidiary undertakings, the institution would largely use, under agreement, the existing banks and the facilities which they can afford. The institution must be equipped with an up-to-date information department, and this will of necessity play a large part in its usefulness and financial success. This might properly be called a Bureau d'Etudes, independent of the Commercial Intelligence Branch of the Board of Trade, but in close touch therewith and under agreement entitled to all possible facilities. That such a bureau is essential has been made abundantly clear by the evidence given by witnesses we have heard, and also by the evidence given before other committees. It would not necessarily deal only with schemes in which the institution proposed to take financial interests, but might be made a centre for investigation of projects on behalf of others, and a considerable revenue might be obtained thereby. Chambers of Commerce and joint stock banks which were disposed to help valuable clients, would no doubt avail themselves of the opportunities it would afford for information. One of the chief objects of the bureau, for instance, would be the organisation and keeping up to date of returns as to the status of firms abroad. It should also obtain the earliest information from abroad about new business openings large contracts offering, State and other loan and issue proposals, etc. If it were found that foreign firms were securing business in competition with British firms, or were developing business that British traders were leaving alone, the causes should be at once investigated. The periodical journeys abroad of the institution's managers and representatives would supplement the information that would be gained through diplomatic and official channels. The bureau would also have to undertake the examination of industrial projects. This would be a costly business, as it would be necessary to have upon its staff men whose opinion upon technical questions would enable it to investigate thoroughly matters brought up for consideration. It would, however, avail itself of the services of the eminent consulting engineers, consult-

ing chemists, etc., whom we possess in Great Britain. It is absolutely clear that the personnel of the institution would call for great discrimination. It seems to be generally agreed that the lines upon which a joint stock bank is constituted would not be applicable in the case of the new concern. An executive committee consisting of a whole-time chairman and three managing directors would appear essential. (There would probably be three distinct departments, financial, industrial, and commercial. No doubt there would be overlapping between the departments, but this would be immaterial.) They would draw good fixed salaries, and would be entitled to a substantial share in profits. There should be a general board of directors, composed of men with banking, financial, industrial, and commercial knowledge, and in close touch with the leading industries of the country. Nearly as important as the board would be the general staff. It is fair to assume that women will in the future take a considerable share in purely clerical work, and this fact will enable the institution to take fuller advantage of the qualifications of its male staff to push its affairs in every quarter of the globe. Youths should not be engaged without a language qualification, and after a few years' training they should be sent abroad. It could probably be arranged that associated banks abroad would agree to employ at each of their principal branches one of the institution's clerks, not necessarily to remain there for an indefinite period, but to get a knowledge of the trade and characteristics of the country. If industry is to be extended, it is essential that British products should be *pushed*, and manufacturers, merchants and bankers must combine to push them. It is believed that this pushing could be assisted by the creation of a body of business young men in the way above described. In this connection it is perhaps worth pointing out that at the close of the war there may be a considerable number of educated young men who will not be willing to settle down again to the humdrum of an office, and from these it should be possible to select a number who would be desirous of going to the Colonies and foreign countries to push business on their own account. In the case of labouring men, the Government are contemplating the establishment of land settlements, etc., at considerable expense, and similarly it has been suggested that Government assistance might be given to the class above-mentioned, who would probably require the advance of some capital to enable them to make a start. The institution might act as agent for the Government in this connection. The reluctance on the part of young men to go abroad in recent years has been brought to the committee's notice, and they think it is very desirable that the spirit of enterprise should be encouraged and that an incentive should be given to them to set up in business in foreign countries. In the case of young men with some little means of their own, the institution should be willing—after careful examination of credentials—to grant larger and longer credits than have been customary with existing banks. The principle of becoming special partners in a business for a period of years will be well worth the consideration of the management when the institution is formed. The evidence perused by us indicates the necessity for fuller financial facilities for home industries, especially in connection with the enlargement of works and the financing of contracts, and where it is demonstrated that a lock-up of capital for an indefinite period is not involved, assistance might be provided by the institution to meet those requirements. If financial assistance is given by the Government to undertakings in connection with what are known as "key" industries, the business should, if possible, be done through the medium of the institution, and it should be appointed an agent for carrying through foreign commercial and financial transactions in which the Government may be interested. Foreign banks have, in most of their operations, adopted the course of forming syndicates to undertake any business of considerable magnitude. They have headed such syndicates and they have taken the labouring oar in connection with investigations. The members of the syndicate have generally included other banks, and associated with them have been those who were particularly interested in the class of business proposed to be done. These syndicates are formed after the first superficial inquiry has satisfied the banks that there is apparently a good business to be done. Directly this point is reached the expenditure in connection with thorough investigation is on account of the syndicate. If the business is ultimately

MINING EXAMINATIONS.

Study for Certificates as Mine Captains, Mine Managers, Surveyors, Mechanical and Electrical Engineers, and Engine Drivers. Private Tuition and Correspondence Lessons, where personal tuition is impracticable. Practical Mathematics and Electrotechnics. E. J. MOYNILAN, Consulting Engineer, Cuthbert's Buildings, corner of Eloff and Pritchard Streets, Johannesburg, P.O. Box 2061.

F. HOPPERT, Only at 86, MARSHALL ST., JOHANNESBURG.

ELECTRICAL & MECHANICAL ENGINEERS.

For Magnetos and Electrical Ignitions.

Repairs to Gas Plants and all work requiring the highest skill.

P.O. Box 3503.

Phone 3130.

proceeded with the profits or losses on the wind-up of the business are shared *pro rata* after allowance to the bank for management. Some such procedure should be followed here. It would enable the institution to undertake business of a comprehensive character, and its "imprimatur" would have value when issues were made to the public. Many new undertakings intrinsically sound have been issued in the English market. The capital has been based upon estimates of expenditure made by reputable engineers, but owing to unforeseen circumstances the actual cost has far exceeded those estimates, and, as a consequence, further capital has frequently had to be raised at higher rates of interest and in a form (such as prior lien bonds) which has had a disastrous effect upon the securities originally subscribed for by the public. An institution issue, whether of debentures or shares,

should be an assurance to the public that until final completion there would be no risk of the priorities given at the time of issue being interfered with by pre-preference creations. We are of opinion that there are strong reasons why the bank should be formed without delay, so that preliminaries may be completed before the war is over. Our enemies are sure to make at the earliest moment strenuous efforts to regain their position in the world of commerce and finance, and it may well be that, when peace comes, unemployment may be rife at home unless new markets are exploited. It seems to us desirable, therefore, to ascertain in advance the requirements of foreign countries and the whereabouts of raw materials for our industries. We believe that a bank constituted upon the above bases, with efficient management, should not only be a great boon to British trade, but should prove a commercial success.

Companhia de Mocambique.

The report of the Companhia de Mocambique covers the two years 1913 and 1914. With regard to the year 1913 it is stated that the available funds at 31st December amounted to £340,273, of which £63,316 in Africa and £276,956 in Europe. The balance of the receipts and expenses in Africa and in Europe, resulting from the operations of 1913, shows an excess of receipts over expenses of £19,756, an increase of £6,236, equal to 14 per cent., and this increase would have been greater if, owing to the serious fall in the price of rubber, the exploitation of this product had not almost ceased in 1913. Apart from Customs receipts, those administration receipts which indicate the economic development of the territory have increased. A decrease in Customs receipts is again a consequence of the great drought of 1912. The commercial movement in the territory was £4,973,688, as compared with £4,691,823 for the previous year. The increase, £281,865, is due to transit and to re-exportation. In 1913 531 ocean-going and coasting ships entered the Port

of Beira, or 55 more than during the previous year, while the number which left was 529, against 478 the preceding year. The total maize of the concession exported in 1913 amounted to 6,673,797 kilogrammes, of the value of £31,423, or almost three times the exportation of 1912. The sugar industry also continues to develop, the factories exporting about 23,948 tons, of a value of £329,333. The quantity of sugar exported was slightly more during the preceding year. The value of gold produced was £23,955, against £10,111 in 1912. At the end of 1913 there were in force concessions for 1,509 gold reef claims, 678 alluvial gold claims, and fifty copper claims; in all, 2,237 mining claims. The report for 1914 states that the available funds at the 31st December amounted to £353,099, of which £298,354 was in Europe and £54,745 in Africa.

The following tenders have been accepted by the Union Tender Board:—Messrs. W. & G. Scott, supply of large tool boxes to the Department of Posts and Telegraphs; Messrs. Purcell, Yallop & Everett, supply of ladders; Mr. John Marcus and Messrs. Stansfield, Ratcliffe and Co., supply of motor cycles to South African Police.

AN IDEAL PUMP !

Such features as reliability, low maintenance cost, high and permanent efficiency and long life, must be embodied in a good turbine pump. That is why we would call your attention to the

REES-ROTURBO

as the embodiment of them all. It is British made under
British patents.



Our Agents in the Union are **Messrs. STURROCK & Co., Engineers.**
Barsdorf's Buildings, Johannesburg, who will be pleased to answer any enquiries.

Phones 2596 & 2597.

Telegrams : "DELTA."

P.O. Box 2863

The Stock Exchange After the War.

The Economist, in the course of an article on "The Stock Exchange After the War," says: "The Stock Exchange having loyally bowed to the requirements of the Treasury, as laid down in the temporary regulations, members feel that they have some sort of right to expect compensation in one shape or another for their sacrifices; and those who advocate the obtaining of a Royal Charter for the House point to this as a reasonable manner in which appreciation might be shown of the spirit with which the House has met the situation created by the war. Very thorny ground is reached, however, when the point of a Royal Charter comes up for discussion. The offer of a Charter was rejected thirty years ago, when it was offered to the Stock Exchange, and greatly as conditions have changed during the meantime, the root principle ruling the rejection remains, namely, that the Stock Exchange is probably better off with its freedom unfettered than it would be with a monopoly plus Government control. It is impossible to forecast what result a plebiscite of members on this particular question would show, but manifestly the whole ground needs painstaking exploration and shrewd foresight, though if the House as a whole had any desire for a Royal Charter, the Committee should be armed in advance with the views of their fellow-members, and bear it steadily in their minds as an object worth securing. Already the House has taken steps with regard to the exclusion of future candidates who are born subjects of the nations with which we are now at war; but it will be seen from the foregoing that there are many other matters of what may be called, without any exaggeration, national urgency, that will have to be settled when the war is over, and towards the study of which the Stock Exchange Committee may well bend their energies and their experience."

Swaziland Tin.

The following are the results of the operations of this company for the month of September, 1916:—Concentrate recovered, 31,245 long tons; estimated profit (taking the price of tin at £170 per ton), £1,007; to which must be added (being adjustments in respect of previous shipments), £108; total, £1,115.

New Kleinfontein.

The report of the directors for the quarter ended 30th September shows a net working profit of £37,425, equal to 3s. 7d. per ton milled. Ore milled amounted to 207,920 tons. Capital expenditure amounted to £15,172, and the payable ore reserves at the end of the quarter totalled 2,990,236 tons of a value of 559 dwts.

Tati Company.

The following is the above company's return of gold and silver produced during the month ended September 30, 1916:—Lady Mary Mine (J. Marnoch): Ten-stamp mill ran 600 hours, crushing 950 tons of ore, yielding 326 ounces fine gold, 75 ounces fine silver, value £1,389 6s. 3d. Cyanide: 1,085 tons of sands treated, yielding 108 ounces fine gold, 62 ounces fine silver, value £464 3s. 5d. New Zealand Mine: D.P.G. Mines, Ltd. (Tributor, S. J. Anderson): Ten-stamp mill ran 477 hours, crushing 180 tons of ore, yielding 123 ounces fine gold, 18 ounces fine silver, value £511 3s. 7d. New Prospect Mine: D.P.G. Mines, Ltd. (Tributor, Mrs. M. M. Butler): Five-stamp mill ran 497 hours, crushing 524 tons of ore, yielding 92 ounces fine gold, 6 ounces fine silver, value £382 9s. 6d. Somerset and Queen of Sheba Mines: Five-stamp mill ran 96 hours, crushing 32 tons of ore, yielding 19 ounces fine gold, 2 ounces fine silver, value £80 2s. 7d.

The Lonely in September.

The following particulars of the output of gold from the Lonely Mine for the month of September, are officially supplied:—Mill ran 658 hours; crushed 5,120 tons; fine gold recovered, 899,746 ozs., value £3,781 19s. 7d.; slimes treated, 5,120 tons; fine gold recovered, 2,582,619 ozs., value £10,859 1s. 4d.; total recovery of fine gold, 3,482,365 ozs.; total value, £14,641 0s. 11d.; profit, £5,625 17s. 1d.

The romance of mining, like the glamour of soldiering, is rapidly becoming a thing of the past. On September 14 prohibition was adopted in the Yukon Territory by popular vote, and it is noted with some surprise that the largest majorities in its favour were in the mining districts. The disappearance of the typical miner of the old school, as depicted by Bret Harte and Service, recklessly blowing in his gold dust in the saloons, dance-houses and gambling dens, is doubtless due to the exhaustion of the placer mines and the adoption of modern methods under which the working miners' possibilities of sudden enrichment have vanished.

A correspondent is anxious to learn something of the early history of the workings for gold on Blauwboschpoort in the Free State. Can any of our readers oblige?

IMPORTANT TO SECRETARIES OF COMPANIES.

THE ARGUS PRINTING AND PUBLISHING COMPANY,
LIMITED, make a Speciality in the

PRINTING OF COMPANIES' ANNUAL REPORTS,

and can execute these

IN TWENTY-FOUR HOURS AFTER RECEIPT OF COPY.

THE NEW MACHINERY LATELY INSTALLED IN THEIR WORKS is the means of their expediting this particular class of work.

ESTIMATES GIVEN ON APPLICATION TO

The Argus Printing & Publishing Co., Ltd.,

Box 1014.

Lower President Street, Johannesburg.

'PHONE UP 3232.

Representatives especially set apart to wait upon
Clients on receipt of a Telephone Message.

TWENTY YEARS AGO.

(Reprinted from the "S.A. Mining Journal" of November 7, 1896.)

Chief Justice Kotzé's brilliant and exhaustive judgment on the cyanide case has removed the threat of a heavy burden from the mining industry. If the African Gold Recovery Company had carried the day, it would have been in a position to recover unpaid royalties to an amount variously estimated at anything between half a million and a million and a quarter sterling—though there is sufficiently good reason to believe that the former figure is the more accurate. Besides this, the Gold Recovery Company would have held a monopoly—limited, it is true, by the popularity of the Siemens Halske process, but still a monopoly—which would have enabled it to hamper the industry by imposing a royalty of its own fixing on any company that preferred the MacArthur-Forrest process. Last August no less than 68,100 ounces of gold were recovered from tailings by the MacArthur-Forrest process; and, when we remember that in the day of its strength the company wished to fix the royalty on all production over 3,000 ounces at 12 per cent., less a discount of 40 per cent., the magnitude of the burden that the industry has escaped will be appreciated.

* * * *

The York mine never looked better. The reefs as found at the deeper levels more than maintain their average richness, and fresh reefs recently found give most encouraging assays. Preparations are in a forward state for the erection of the battery, and the electric light installation will very shortly be completed. On the whole, the prospects of the mine are excellent.

* * * *

On Tuesday some 135 "boys" struck on the George and May mine, and appear to have deserted, but what has happened since in this matter is not yet known. This sort of thing is going on constantly along the whole line of reef.

* * * *

The results of last month's crushing at the Goldenhuis Deep are known in London, but all that has leaked out here is that it falls some 500 to 600 ounces short of the September output.

* * * *

To those who know the Malmani fields, and the manner in which anything like successful exploitation has been handicapped by the enormous pumping power requisite to keep the mines dry, it seems a trifle needless for the Government to have granted a concession for a somewhat ambitious water scheme to supply the mines with water from the Malmani River.

* * * *

The purchase has recently been concluded of a block of 18 claims on the Zwaartkops line of reef, in the Barberton district, known as the Glenefler block; the price paid is said to be somewhere in the neighbourhood of £300 per claim. The buyers are the African Gold Recovery Company, whose interests in Barberton are now not inconsiderable.

* * * *

The rapid fall in scrap of the Heidelberg-Roodepoort is due to the very disappointing results of the crushing, which is pretty well known to be a trifle over 2 dwts. In a short time a fresh zone of rock will be available, which is likely to bring the general value of the ore crushed up to 27s. or 28s.; but, as the cost of production is about 30s., it cannot be said that the outlook is promising.

* * * *

In reply to enquiries prompted by the report in a daily contemporary that Mr. Brochon was closing down all prospecting in the Heidelberg district, he states that this is incorrect; for, whilst certain work has been stopped, there is no decrease in the activity prevailing on other farms.

* * * *

Whilst the ever-expanding Customs returns at the ports prove an increase in the volume of the general trade of the country, on the Rand itself the tendency is rather an abatement of business than of an increase corresponding with importations. The explanation is probably to be found in the fact that indents were placed in Europe at a period anterior to the woeful decline of the stock market, and before dearer money had entered into calculations. In the timber trade, for instance, buying orders have to be placed in the Baltic early in the year, and the first shipments leave about April, or as early as the breaking-up of winter permits. Importers have to estimate their requirements for the ensuing year and place their orders accordingly. Before the blight fell upon the market there was every reason to believe, from the number of new enterprises projected, and the steady stream of population pouring into the Rand, that a period of trade prosperity was at hand which would eclipse the experience of 1895 as much as that year did the trade of 1894.

Improved Test for Molybdenum.

The test for molybdenum originated by Schloenn and improved by Masche consists in treating a portion of the substance with a small quantity of sulphuric acid on a porcelain or platinum surface and evaporating to near dryness. By the addition of water in minute quantities, such as result from breathing on the mass, the appearance of a distinct blue coloration indicates molybdenum. This result is not always easily obtained with molybdenite unless the sulphur is oxidised with nitric acid, and in the case of wulfenite it sometimes fails entirely. An improvement (suggested by Mr. G. A. James in the *New York Engineering and Mining Journal*) that accentuates this reaction and prevents its disappearance, is the addition of some glacial acetic acid. When this is slightly heated, the blue colour appears immediately and persists. In connection with this subject Mr. James calls attention to the frequent appearance of wulfenite with gold ores, which in the pan hangs back with the gold, for which it is often mistaken. To test this, a portion is treated with nitric acid and a drop of sulphuric acid and heated until white fumes appear. On the addition of glacial acetic acid the typical blue reaction appears strongly. If another portion is treated with acetic acid the addition of potassium bichromate will give a strong yellow precipitate.

Far Eastern Rand Geology.

Sir,—In Mr. J. Dale Lace's map of the Far Eastern Rand, published in your last issue, I consider he has not done justice to his "Sparwater," or "Grootfontein" either, by calling the Nigel Reef "Main Reef," for, as a matter of fact, Main Reef series overlies the Nigel by a very long way in that district, owing to one of Nature's little dodges, and its characteristic sandstones, etc., are in evidence in the southern corner of Grootfontein, which no geologist who knows his business can gainsay. Had it not been for "the Raid," I would have been one of the owners of Grootfontein to-day, as the late James Leonard and myself had an option over it at that time, and all arrangements were made for drilling and flotation—but as per usual in this country, "l'homme propose, etc." It is remarkable also, like most cartographers, when Mr. Dale Lace's positive line turns the corner beacon of Marievale he pulls it back from out of Holgatfontein on to the boundary line of the Marievale-Mynpacht, which, again, is an injustice to Mr. Stuyt's portion of Holgatfontein; for there, and only there, after the blank, is true Nigel formation to be seen at surface, several hundred yards to the east of the Marievale boundary. The supposed trend of sub-outcrops, and contacts, do not appeal to your humble servant as there are so many of them, and lucky the geologist or mining engineer who knows one from the other in a borehole, as it is not an easy matter to swear to them even at surface. One thing I do know, and that is that more than half the companies out East are working Black Reef, call it by what other name they may. I have walked over "Modderfontein" and "Klipfontein" hundreds of times since these fields were discovered, and if the so-called "outcrop of Main Reef" there, *vide* Mr. Lace's map, is not Black Reef then all the years spent on Rand stratigraphy have not taught me the A.B.C. thereof. What the prejudice is against Black Reef series, of the Black Reef age, I fail to comprehend. It has rich and poor patches like any other, it is easily worked on account of its soft shale footwall, and covers 30,000 square miles of country from my observation—not a bad ore reserve for posterity when you come to think of it in conjunction with the hundreds of miles of untouched Witwatersrand age, etc., etc. Lest we forget! The four five-mile-thick auriferous geological ages of this wonderful country of ours, in order of birth, are the Schistose, Lydenburg, Witwatersrand, and Black Reef.—Yours, etc.,

SCOTT ALEXANDER,

"Rand Stratigraphist."

Johannesburg,

October 31st, 1916.

HADFIELD'S Ltd.

WORKMEN
EMPLOYED,
ABOUT 6,000.

Hecla & East Hecla Works, Sheffield, England.

WORKS
AREA OVER
110 ACRES.

SOLE MAKERS OF

Hadfield's Patent "ERA" Manganese Steel

The SUPREME MATERIAL for

The Wearing Parts of Stone Breaking and Ore Crushing Machinery, Tramway Trackwork, Mining Wheels, etc

COMPLETE STONE BREAKING AND ORE CRUSHING PLANTS.

MINING REQUISITES

of all kinds, including Wheels and Axles, Rollers and Frames, Pulleys, Pedestals, Shoes, Dies, Balls, Grizzly Bars, Crushing Rolls, Jaw Faces, Cones, Concaves, etc.

Head Office for South Africa:

46 & 47, CULLINAN BUILDINGS, JOHANNESBURG.

Phone 5900.

Tel. Add.: "HECLA."

Box 1009.

STORES, DENVER, TRANSVAAL (Adjoining Denver Station).

Bulawayo Agents—

WHITMORE & JACKSON,
17 & 18, Agency Chambers.

Salisbury Agents—

P. PEECH & Co.,
Angwa Street.

Natal Agents—

THOS. BARLOW & SONS,
Smith Street, Durban.



WAR CONDITIONS IN CANADA

may have caused a shortage of asbestos, but "PALMETTO" packing will continue to be made only of the first grade asbestos, even though it costs more.

The quality that has made "PALMETTO" famous for long service under hard conditions will be continued.

Let us send you a Sample to prove quality.

GREENE, TWEED & CO.,
Sole Manufacturers,
109, DUANE STREET, NEW YORK.

Carried in Stock by—
BARTLE & CO., Johannesburg.
E. W. TARRY & CO., Ltd.,
Kimberley, Salisbury and Bulawayo.

"PALMETTO"
SELF LUBRICATING
PACKING

THE WEEK IN THE MINING MATERIAL AND ENGINEERING TRADES.

The Question of "Outside" Tenders—A Group Buying More Freely in Johannesburg—Brushware Scarce—Oils Advancing—Blue Lime and Cement Ever Increasing.

THE feature of the week has been the curiosity expressed on the Commercial Exchange and in other circles as to whether any new people, other than the Rand mining houses, have sent in tenders for the Government gold mining ground on the Far Eastern Rand—to wit, more particularly, whether there are any American tenderers. Notwithstanding the endeavours of a few enthusiasts, nothing so far can be ascertained. Another outstanding feature is a statement to the effect that a mining group which has been a buyer direct to a large extent from overseas during the war, has modified its practice and will in future purchase the major portion of its mining requirements through the Johannesburg merchants. This modification may not be noticeable until after the end of the year, as it is now admitted that the mines are buying less this month than last, as they are keeping down stocks by using from reserves. This news is confirmed from a mining buyer's source, as they are only buying just bread and butter lines, such as deals, hardware, machinery spares, paraffin oil, etc. All quotations are much the same, but deals are a penny per foot up (when keenly tendered for) as 1s. 2½d. had to be paid for a parcel on Wednesday as compared with 1s. 1½d. per foot for a similar lot about the middle of last month.

VALUES STATIONARY, WITH EXCEPTIONS.

With the exception of timber, values remain much the same, nevertheless a hint was thrown out that a mining commodity had risen within the past fortnight from 5½d. to 7½d. per lb., but the broker vouchsafing the information declined to go farther, as it might spoil his market. The chemical market is inclined to recede in the price of cyanide, zinc and mercury, as supplies have been assured for the next six months, which has already steadied values. For example, it has been difficult of late to give a solid quotation for mercury, as it was nothing unusual for the price to vary a pound per bottle, especially when an order had to be executed in a hurry.

OILS, COLOURS, WHITE LEAD, BRUSHWARE, ETC.

The mines cannot get anything like an assortment of brushes, therefore many substitutes and make-shifts have to be resorted to, much to the inconvenience of the workmen and often delays to work. According to an importer, orders sent away from here in March, 1915, have not yet been completed. Cables have often been sent to hurry brushware forward, but the same reply is always given, that so many men are away at the front and certain classes of brushware are not being made at the present. However, another cable was sent on Thursday, stating that the firm in question must have certain supplies for Christmas. South African makers are endeavouring to relieve the position and to a small extent something has been accomplished in the cheaper and household varieties. However, when it comes to making a bristles brush and other high-class varieties, there becomes a bit of a deadlock, as the raw materials are not available, neither are the latest implements and machinery to produce the best class of goods. As regards the linseed oil market, quite a rise overseas has taken place, and our local price has advanced from 26s. 6d. to 28s. 6d. per case. The reason given for the advance is the partial failure of the Argentine crop. Some estimates only anticipate half the crop, which made the markets very erratic for several days. Heavy purchases have been recorded in Liverpool and forwarded deliveries are higher. Other values are much the same but with firmer tendencies.

IRON, STEEL AND HARDWARE GOODS.

There is a very great scarcity of the smaller sizes of imported bar iron and substitutes have to be accepted, and

where these are not available the blacksmith has to do the best he can and make the required size, in a small way. Had it not been for the local makers manufacturing from scrap iron, the position during the war period would have been serious. Much more could have been done in this respect had our makers been able to secure the necessary machinery, which has been ordered for a very long while, but it seems hopeless to expect any intricate machinery to materialise until after the war. The steel position continues acute in Britain, as so much has to be supplied to France and other countries. However, the mines can obtain supplies by sending the orders through the proper channel, where they are scrutinised very carefully.

BLUE LIME, CEMENT, AND GLAZED PIPES.

The past month has been quite a record in the demand for Transvaal blue lime, the major portion of which went to the Cape and O.F.S. towns, as well as the harbours at Capetown, Port Elizabeth, East London and Natal. The chief reason for this increased demand, which is ever growing, is attributable to the fact that our blue hydraulic lime has been improved from time to time and so brought up to its excellent condition. In the second place there is little or no importation of the overseas Portland cement, and the blue lime is a good substitute in many of the requirements for building purposes. The Transvaal cement is also universally used throughout South Africa, but the present factories cannot fully supply the increasing demands, hence the blue lime comes well in to the market. In fact a judicious mixture of Transvaal cement and Transvaal blue lime has become an ideal composition for a certain class of foundation work, with the advantage in the saving of costs. Again the Transvaal glazed pipes are in universal demand throughout South Africa and have practically supplanted the imported article for sewerage and irrigation purposes. Then our fireclay bricks, ground fireclay, and fireclay goods of all description have proven in their various uses that we are rubbing along nicely without the imported article. Whatever happens after the war is a matter for the future, but to-day the industries mentioned have risen to their opportunity and are reaping well merited rewards.

SURVEYING AND SCIENTIFIC INSTRUMENTS.

In consequence of the difficulty of obtaining the specially made glass phials, tubes, lenses, and the numerous other glasses and porcelain fittings for the latest scientific instruments, many of them have to be laid by. Hence the town

'Phone 4673.

Box 3162.

OSBORN'S STEEL.

Write or 'Phone for Stock List.

SAMUEL OSBORN & Co., Ltd., SHEFFIELD and JOHANNESBURG

is occasionally searched for the nearest second-hand substitutes for everyday work purposes and often the research work has to stand over, to be dealt with in future. A lot of the glass tubes, etc., formerly came from Austria, but practically all those stocks have now been used up. Japan has stepped into the breach, particularly for the ordinary glass requirements, but for the very finest and delicate lenses and such like, more experienced and skilled workmanship seem necessary.

SECOND-HAND GOODS.

An unusually large number of small orders has been received from all parts of South Africa for the hundred and one sorting up lines, as the idea has quite taken hold that anything in the shape of machinery and hardware spares can be obtained in Johannesburg—which is generally correct. There are no outstanding features, however, several cranes, tanks, and a lot of odd irrigation pipe fittings have been recently bought from the second-hand yards, also since the rains there has been a demand for deals and all kinds of rough woodwork, as well as galvanised iron for farm out-buildings, etc. The smaller sizes of second-hand pipes and fittings are scarce, but there are fair quantities of the medium and larger sizes. Tram rails are very scarce indeed, as there are very few of 12, 14 or 16 lb. kinds available at any price. Several pumps, sluice valves, tipping trucks, and a vertical steam engine, have been forwarded to Southern Rhodesia and Northern Transvaal.

REVISED PRICE LIST.

Approximate war prices, subject to quick changes.—Mining and building hardware: Iron, imported, round up to 1 in., 30s.; 2 in. to 6 in., 25s. per 100 lbs. Ditto, square, up to 1 in., 27s. 6d.; 1½ in. to 2½ in., 23s. 6d.; 2½ in. to 5 in., 25s. Flats, 3-16 in., 37s. 6d.; all from ¼ in. up, 30s. Angles, ½ in. to 3-16 in., 40s.; ¼ in., 35s.; 5-16 in. to ¾ in., 30s., excepting 5 x 4 x ½ in.: mild steel bar, 4½ d. lb.; drill, 7 lb.: steel plates, 10ft. by 4ft. by 1-16th in., 35s.; ½ in., by 3-16 in., 32s. 6d.; ¾ in. to 5-16th in., 31s.; ¾ in., up to 30s.; 10ft. by 5ft. by 1-16 in., 36s. 6d.; ¾ in. and 3-16 in., 34s.; ¾ in. to 5-16 in., 32s. 6d.; ¾ in., up to 31s. 6d.; intermediate sizes up to 12ft. by 6ft. by 1-16 in., 37s.; ½ in. and 3-16 in., 31s. 6d.; ¾ in. and 5-16 in., 33s.; ¾ in. and up 32s., all at per 100lb.; hexagon and cuphead bolts, ½ in. diameter to 2½ in., 55s., over 2½ in., 52s. 6d.; ¾ in. to 2½ in., 50s., over 47s. 6d.; ¾ in., ¾ in., 1 in., up to 2½ in., 45s., over, 42s. 6d.; nuts, ¾ in., 10d. lb., ¾ in., 60s., ¾ in., ½ in., 57s. 6d., 1½ in., 1¾ in., 62s. 6d., 2 in., up, 67s. 6d.; washers, all sizes, 45s.; rivets, 3-16 in., 1s. 1d. lb., ½ in., 5-16 in., 10½ d., 7-16 in., ¾ in., 7½ d., ¾ in., 45s., ¾ in., 42s. 6d., ¾ in. up, 40s. lb.; shoes and dies, 32s. 6d. to 35s. per 100lb.; rails, £23 per ton; picks, 4lbs., 27s. per doz.; shovels, 32s. 6d. to 50s. per dozen; drill hammers, 5½ d. lb. to 6d. lb.; hammer handles (best American), 14 in., 3s. 6d., 24 in., 7s., 30 in., 9s. 6d., 36 in., 13s., per dozen; metal, anti-friction, 1s. per lb.; galvanised iron, 24 gauge, 6 ft. to 10 ft., 10d., 11 ft. 10½ d., 12 ft. 11d.; 26 gauge, 6 ft. to 10 ft., all lengths, 9d. to 9½ d. per ft. all round; flat galv., 18 to 24 gauge, 35s. 6d.; 26 gauge, 36s. 6d. 100 lbs.; floor brads, 32s. 6d.; ceiling, 33s.; wire nails, 37s. 6d. to 55s. per 100 lbs.; solder, 50 per cent., 1s. 4d. per lb.; locks, rim, 48s.; mortice, 60s. dozen; barbed wire, 23s. 6d. to 25s. 100 lb. coil.

Timber: Deals, Baltic, 9 x 3, short and medium 1s. 1d.; longer lengths, 1s. 2d. to 1s. 3d. (Oregon, 1s. 1½ d.); flooring, 4½ x ¾ and 6 x ¾, 6½ d. to 6¾ d. per sq. ft.; do., 4½ x 1½, 7d.; and 6 x 1½, 7d.; Oregon edge grain, 4 x 1½, 7d.; ceilings, 6 x ½, 3¾ d. to 3¾ d. per sq. ft.; Oregon, 4 x ¾, 4½ d.; pitch pine, 8s. per cub. ft.; Oregon, 6s. per cub. ft.; clear pine, ½ in. x 12 in., 7½ d. per ft.; 1 in. x 12 in., 8½ d.; teak, small planks, 14s. 9d. per cub. ft.; do., large, 15s. 6d.; jarrah, 8s. 6d. per cub. ft.; poplar, 1 in. x 12 in., 9½ d.; scantling, 1s. 1d. to 1s. 2d. per ft., 3 x 9

Bricks, cement, lime, etc.: Cement, nominal, 34s. 6d. per cask; Pretoria Portland, 9s. 3d. per bag; 8s. 3d., truck loads; lime, white, 7s. 9d.; truck loads, 6s. 9d., slaked; do., 5s.; blue, 3s. 6d.; plaster lime, 4s.; bricks, stock, delivered, 37s. 6d. to 42s. 6d.; wire cuts, 50s. to 70s. pressed, 70s. per 1,000, road transport almost unobtainable; salt and white glazed bricks, £27 10s. per 1,000; tiles, roofing, £17½ square; glazed tiles, 10s. 6d. to 17s. 6d. yard; paving cement tiles, 8s. 6d. yard laid; terra cotta tiles, £15 per 1,000; reinforced concrete columns, 6 ft. plain, 22s. 6d., fluted, 21s.; fireclay bricks, £9½, good average, per 1,000; clay chimney pots, 80s. per doz.; fireclay, 37s. 6d. ton on rail.

Oils, paints, lead, oxides, glass: Linseed, raw, 28s. 6d.; boiled, 28s. 6d. per 5-gall.; white lead, 70s. to 72s. 6d. 100 lbs.; turpentine, 49s. 2½ galls.; 10/1, 54s.; coal tar, imported, 10s. to 12s. 6d. per 5 galls.; oxide in oil, 35s. to 36s. per 100 lbs.; dry oxide, 21s. to 22s. 6d.; S.A. crude oxide, 12s. 6d.; linseed oil putty, 4s. 6d. per 12½ lbs.; bladders, 36s. casks of 100lbs.; grease A.F. axle, 23s. 6d. to 25s. per 100 lbs.; tallow, 1s. per lb.; White Rose paraffin, 17s. 3d. 2½; Laurel do., 17s.; petrol, 27s. 6d. 2¼; motor oil, 6s. to 7s. 9d. per gallon; engine lubricating oils, 22s. to 35s. per case; cylinder, 25s. to 40s.; paints in tins, 10d. to 1s. per lb., according to quantity, and if ordered to be mixed, 20 per cent. on pre-war rates. British plate-glass, ¼ in., 3s. 6d.; do., mirror, 4s. 6d.; window, 16oz., 1s. to 1s. 3d. foot.

Chemicals: Mercury, £20 per 75 lb. bottle; bichromate potash, 2s. 6d. lb.; chlorate, 2s. 6d. lb.; permanganate, 6s. lb.; alum, 4d. lb.; carbolic acid, 6s. 6d. lb.; borax, 87s. 6d. 100 lbs.; cyanide soda, 1s. 5d. lb.; hypo, 9d. lb.; acetate lead, 70s. 100 lbs.; litharge (assay), 70s. (commercial), 55s. 100 lbs.; zinc sheets and blocks, 1s. 6d. lb.; plumbago crucibles, 5d. per number.

Electrical Goods: Lamps, high volts., British, Holland & American, 16s. to 21s. wholesale, and 21s. to 27s. dozen, retail; carbon lamps, 7s. 6d. per dozen; pure rubber flex, 5d. to 6d. per yard; 3/20 coils of wire, 24s.; do., 3/22, 21s.; tubing, 12s. to 13s. 100 ft.; keyholders, 4s. each; round blocks, 3½ in., 3s. 6d. doz.; lamp holder cord grips, 13s. 6d. doz.; switches, 5 amp., 13s. to 14s. doz.; British glass shades, 24s. to 36s. doz.; Bohemian shades finished; porcelain shackles, 14s. 6d. doz.; do., bobbins, 9s. to 9s. 6d. per 100; cleats, 18s. per 100; P.O. insulators, 18s.; motors, 3 h.p., about £28 to £35, new.

ANSWERS TO CORRESPONDENTS.

All inquiries addressed to the Editor must bear the writer's name and full address. We cannot reply to inquiries by letter, but telegrams with replies prepaid will be answered. Correspondents are requested to write their names and pseudonyms distinctly.

"Holder."—The shares are quoted on the London market, and apparently there only.

"J.W.B."—Your bank will readily effect the purchase of the War Loan stock.

P. Welsh.—Too late for this week.

"Anxious."—There is nothing wrong at the mine, and the liquidation by weak holders will do no harm.

F. Bishop (Boksburg).—We cannot publish unsubstantiated attacks on firms or individuals.

"W.F."—(1) Hold. (2) Certainly. (3) No means of knowing.

J. Levy (Hillbrow).—See reply to F. Bishop.

"D.W."—Development is proceeding slowly, but all the indications are encouraging.

"Kim."—The address of Aliwal North Diamonds, Ltd., is c/o W. F. Duckles, Exploration Buildings, Johannesburg.

"Interested."—We understand that the prospectus of the Platkopjes venture has been withdrawn.

"Small Man."—The Rhodesian returns are a week late, but are printed in this issue.

Rhodesian Section.

RHODESIAN MINERAL OUTPUT.

Details of Complete Returns for September.

WE have received for publication from the office of the Rhodesia Chamber of Mines (Incorporated) the following detailed statement of the mineral output for the month of September, with comparisons and values:—

MATABELELAND

BULAWAYO DISTRICT—

| | No. of stamps. | Tons treated. | Yield ozs. | Value. £ |
|---|----------------|---------------|------------|----------|
| Abercorn 3 (W. J. Lane) | 5 | 290 | 106.06 | 440 |
| Agincourt (Hogg & Co.) | 5 | 110 | 59.32 | 246 |
| Annasona (Rhodesia, Ltd.) | 3 1P | 290 | 624.92 | 2,591 |
| Antelope G.M. (Rhod.), Ltd. | 2BM2P1T | 3,930 | 543.91 | 2,255 |
| Do. (slimes) | — | 3,615 | 1,311.46 | 5,437 |
| Ante-Up (J. A. McMurray), Aug.-September | 3 | 72 | 67.96 | 282 |
| Black Prince (Gillespie & Matheson) | 2 | 40 | 5.75 | 24 |
| Bulawayo Main A. (Aserman and Cornack) | 5 | 336 | 94.69 | 393 |
| Do. (sands) | — | 162 | 26.39 | 109 |
| Camp (Cairson Mines, Ltd.) | 5 | 620 | 112.83 | 468 |
| Do. (sands) | — | 400 | 44.35 | 184 |
| Carry (Boomerang Syndicate) | 5 | 448 | 140.96 | 584 |
| Do. (sands) | — | 260 | 96.60 | 392 |
| Cart Wheel (J. Cook) | 3 | 60 | 43.60 | 181 |
| Cecil (Master Cecil Syndicate) | 3 | 70 | 27.52 | 114 |
| Cottage (Cottage Syndicate) | 4 | 212 | 59.47 | 247 |
| Do. (sands) | — | 156 | — | — |
| Crissie (J. M. Lottering) | 5 | 31 | 22.67 | 94 |
| Czar (A. R. Jacoby) | 1 II | 35 | 8.80 | 36 |
| Do. (sands) | — | 48 | 6.58 | 27 |
| Durban (Durban Syndicate) | 2 | 260 | 143.00 | 593 |
| Do. (sands) | — | 120 | 61.54 | 255 |
| Edward (E. Warren) | 5 | 184 | 47.25 | 196 |
| Entambie (R. C. Boyes) | 5 | 351 | 24.19 | 100 |
| Excelsie (G. W. Puzey), sands | — | 40 | 9.56 | 40 |
| Farvic (H. S. Henderson) | 5 | 616 | 636.69 | 2,700 |
| Do. (sands) | — | 708 | 59.65 | 253 |
| Fernando (Trans. & Rhod. Est.) | 10 2P | 1,620 | 1,199.16 | 4,971 |
| Do. (sands) | — | 1,620 | 393.98 | 1,633 |
| Flora (H. L. Henderson) | 2 | 150 | 80.55 | 334 |
| Frank's Luck (R. Aserman) | 5 | 250 | 51.37 | 213 |
| Geelong (M. & G. Hogg) | 10 | 1,025 | 143.93 | 597 |
| Germania (A. G. Haddingham) | 2 | 238 | 249.29 | 1,033 |
| Good Hope (Emerton & Matthews) | 1 II | 85 | 26.42 | 110 |
| Godwin B. (F. C. Barrett) | 5 | 295 | 86.22 | 357 |
| Do. (sands) | — | 350 | 21.25 | 88 |
| Great Belingwa (R. C. Boyes) | (5) | 293 | 122.83 | 509 |
| Intabanenda (Intabanenda Synd.) | 5 | 385 | 80.21 | 333 |
| Do. (sands) | — | 560 | 28.61 | 119 |
| Iron Duke (Iron Duke Synd.), Aug. | 3 | 305 | 200.05 | 829 |
| Do. do. Sept. | (3) | 269 | 192.73 | 799 |
| Jameson (F. Rice) | 3 | 20 | 7.30 | 30 |
| Jeffs (Horton & Stewart) | 3 | 152 | 64.47 | 267 |
| Do. (sands) | — | 900 | 86.48 | 358 |
| Jessie (Harrill & Smith) | 10 | 590 | 123.97 | 514 |
| Jumpers (J. P. McCay) | 5 | 400 | 266.58 | 1,105 |
| Do. (sands) | — | 297 | 41.52 | 172 |
| Lone Hand (Armstrong, Furber and Alexander) | 5 | 400 | 139.96 | 580 |
| Do. (sands) | — | 250 | — | — |
| Kameel 1W. (H. F. Edensor) | 5 | 60 | 13.73 | 57 |
| Kernel (E. Farrer) | 5 | 100 | 37.03 | 153 |
| Lonely Reef G.M. Co., Ltd. | 20 3T | 5,120 | 899.74 | 3,730 |
| Do. (slimes) | — | 5,120 | 2,582.61 | 10,706 |
| Long John (Susanna Mines, Ltd.) | 2 GR | 3,931 | 509.75 | 2,113 |
| Mamba (Nicholls & Co.) | 5 | 300 | 104.28 | 432 |
| Do. (sands) | — | 165 | 33.96 | 141 |
| Matabele Queens Co., Ltd. | 10 | 1,980 | 351.87 | 1,459 |
| Do. (sands) | — | 1,980 | 382.53 | 1,586 |
| Mayfair (Hicks & Arbery), sands | — | 100 | 7.79 | 32 |
| Merrythought (Merrythought Syd.) | 3 | 38 | 28.90 | 120 |
| Monitor (E. K. Jubber) | 5 | 187 | 55.57 | 230 |
| Nelly (F. D. Roscoe) | 2 II | 580 | 202.19 | 838 |
| Do. (sands) | — | 270 | 85.97 | 356 |
| New Eclipse (J. R. Stewart) | 5 1T | 1,160 | 163.21 | 677 |
| Nicholson (clean up) | — | — | 32.03 | 133 |
| Old Caledonia (W. K. Early) | 2 | 60 | 33.98 | 141 |
| Do. (sands) | — | 80 | 11.27 | 47 |

| | No. of stamps. | Tons treated. | Yield. ozs. | Value. £ |
|---|----------------|---------------|-------------|----------|
| Old Nic (Chart. & Gen. E. & F. Co., Ltd.) | 15 | 2,267 | 607.55 | 2,519 |
| Do. (sands) | — | 1,368 | 78.36 | 325 |
| Peach A. (Peach Syndicate) | 5 | 318 | 350.51 | 1,453 |
| Do. (sands) | — | 410 | 17.55 | 73 |
| Polar Star (Ettie Syndicate) | 3 | 350 | 52.70 | 218 |
| Do. (sands) | — | 280 | 18.33 | 76 |
| Prince Olaf (K. Johnsen) | 5 | 300 | 211.10 | 875 |
| Princess (C. A. Abbott), clean up | 2 | 65 | 14.74 | 61 |
| Queens West (Cumings & Berry) | 5 | 580 | 213.70 | 886 |
| Do. (sands) | — | 415 | 111.62 | 463 |
| Rhodesian Queen (Gilpin & Pickles) | 5 | 120 | 42.73 | 177 |
| Seafeld 1E. (Arbery & Hicks) | 5 | 621 | 59.68 | 247 |
| Slope 1 (E. E. Beecroft) | 5 | 846 | 145.40 | 603 |
| Star (Romola Nigel G.M. Co.) | 5 | 273 | 59.13 | 245 |
| Do. (sands) | — | 200 | 19.81 | 82 |
| Tentonic (W. & A. Synd.), August | 5 | 553 | 87.81 | 364 |
| Do. do. September | (5) | 456 | 80.50 | 334 |
| Venus (A. Blumenthal) | 3 | 288 | 171.17 | 710 |
| Wolley Dog (Mrs. G. C. Davis) | 5 | 592 | 239.11 | 991 |
| Do. (sands) | — | 242 | 28.73 | 119 |

Bulawayo district total

16,137.24 66.961

GWELO DISTRICT—

| | | | | |
|--|---------|--------|----------|--------|
| Alderman (Williams & Woodger) .. | 5 | 350 | 70.96 | 294 |
| Do. (sands) .. | — | 840 | 83.82 | 347 |
| Do. (sands), August .. | — | 1,140 | 62.77 | 260 |
| Ardpatrick (C. Maleham) .. | 3 | 193 | 91.17 | 378 |
| Bell Reef Dev. Co., Ltd. | 2B 1T | 3,597 | 1,333.40 | 5,528 |
| Bonsor B323 (Cornish Syndicate) .. | 10 | 900 | 82.91 | 344 |
| Do. (sands) .. | — | 630 | 81.13 | 75 |
| Bonsor B327 (T. Roberts) .. | 10 | 800 | 94.36 | 391 |
| Do. (sands) .. | — | 1,450 | 108.23 | 449 |
| Broken Luck (C. C. Stack and E. Rowe) .. | 1 Pn | 340 | 34.06 | 141 |
| Cap (W. Cock) .. | 2 | 42 | 11.33 | 47 |
| Conqueror (Lapington & McConkey) .. | 2 | 150 | 137.30 | 569 |
| Csardas (Wolfshall Syndicate) .. | 10 | 520 | 517.97 | 2,147 |
| Do. (sands) .. | — | 420 | 55.39 | 230 |
| Do. (slimes) .. | — | 100 | 9.50 | 39 |
| Emerald (Boston & Flann) .. | 5 | 400 | 115.76 | 480 |
| Do. (sands) .. | — | 270 | 33.63 | 139 |
| Falcon Mines, Ltd. | 36N 3T | 19,712 | 2,833.74 | 12,211 |
| Do. Copper, £32,206. | — | — | — | — |
| Fed Up (A. Malcolm) .. | 5 | 290 | 122.19 | 506 |
| Gaika G.M. Co., Ltd. | 5 1C 1T | 3,018 | 790.10 | 3,318 |
| Do. (sands) .. | — | 4,015 | 851.94 | 3,514 |
| Glen Hume (Hume, Withey and Walker) .. | 10 | 1,270 | 128.41 | 532 |
| Glen Rosa (Glen Rosa Syndicate) .. | 10 | 1,289 | 1,110.74 | 4,604 |
| Do. (sands) .. | — | 575 | 114.50 | 475 |
| Globe & Phoenix G.M. Co., Ltd. | 40 10P | 6,373 | 5,406.49 | 22,707 |
| Do. (sands) .. | — | 6,489 | 1,840.51 | 7,730 |
| Do. (slimes) .. | — | 2,180 | 375.78 | 1,578 |
| Do. (concentrates) .. | — | 297 | 401.87 | 1,688 |
| Ingersoll (C. T. Fren) .. | 2 | 22 | 8.89 | 37 |
| Ingondomo (F. C. Luxat) .. | 1 II | 700 | 97.87 | 406 |
| Do. (sands) .. | — | 530 | 57.12 | 237 |
| Invulnerable (A. E. West) .. | 5 | 170 | 23.15 | 96 |
| Loyalist (B. Bertoldi) .. | 3 | 63 | 56.09 | 232 |
| Moss (W. M. James) .. | 5 | 964 | 477.18 | 1,978 |
| New Dunraven G.M. Co., Ltd. | 5 | 560 | 101.09 | 419 |
| Pagamesa (W. H. Peard) .. | 15 2P | 663 | 211.24 | 876 |
| Do. (sands) .. | — | 534 | 82.08 | 340 |
| Pondo (F. C. Luxat) .. | 5 1II | 1,362 | 148.55 | 616 |
| Do. (sands) .. | — | 576 | 67.88 | 281 |
| Record (Pini & Wearing) .. | 5 | 494 | 35.45 | 147 |
| Renvyle (A. & B. Syndicate) .. | 5 | 362 | 32.46 | 135 |
| Do. (clean up), August .. | — | — | 9.93 | 41 |
| Romney (T. Pedlow) .. | 5 | 100 | 41.08 | 170 |
| Second Trial (J. Rainsford) .. | 5 | 12 | 1.44 | 6 |
| Selukwe Columbia G.M., Ltd.— | — | — | — | — |
| Danga .. | 10 1P | 424 | 110.05 | 456 |
| Do. (sands) .. | — | 168 | 48.13 | 200 |
| Wonderland .. | 10 1P | 979 | 348.50 | 1,445 |
| Do. (sands) .. | — | 532 | 152.43 | 632 |
| Yankee Doodle .. | 10 | 500 | 25.72 | 107 |
| Do. (sands) .. | — | 400 | 43.71 | 181 |
| Do. (case bar) .. | — | — | 7.92 | 33 |

| | No. of stamps treated | Tons | Yield, ozs. | Value, £ |
|---------------------------------------|-----------------------|--------|-------------|----------|
| Shamrock (H. H. Crampin), sands | — | 500 | 22.67 | 91 |
| Stranger (J. M. Haymar) | 2 N | 351 | 32.73 | 136 |
| Tebekwe I. (A. N. Tyrrell) | 10 | 580 | 160.36 | 665 |
| Do. (sands) | — | 720 | 84.71 | 351 |
| Trixie (S. Levin) | 10 1P | 683 | 148.77 | 617 |
| Do. (sands) | — | 1,240 | 57.56 | 239 |
| Veracity (L. R. Evans) | 4 | 360 | 138.69 | 575 |
| Do. (sands) | — | 208 | 34.49 | 143 |
| Walrus (J. Jones) | 6 | 120 | 56.17 | 233 |
| Wanderer (Selukwe) G.M., Ltd. | 4GR | 13,680 | 1,336.37 | 5,540 |
| Do. (slags), January | — | — | — | 10 |
| Zabonkwe (Holmes & Urquhart), (sands) | — | 600 | 105.31 | 437 |
| Gwelo district total | | | 21,182.15 | 88,829 |

MASHONALAND.

HARTLEY DISTRICT—

| | | | | |
|--|-------|--------|----------|--------|
| Acorn (Anzac Syndicate) | 5 | 402 | 222.70 | 923 |
| Do. (sands) | — | 300 | 56.05 | 232 |
| Affaire (H. Crookes), pannings | — | — | 3.34 | 14 |
| Alexandra (Alexandra Syndicate) | Dolly | 3 | 27.20 | 113 |
| Arlander (Kear & Rooke) | 10 | 950 | 74.98 | 311 |
| Do. (sands) | — | 950 | 142.33 | 590 |
| Do. (slags) | — | — | 36.34 | 145 |
| Baltimore & Virginia (P. A. Enke) | 5 | 210 | 27.64 | 115 |
| Brilliant (Mabel's Luck Syndicate), slimes | — | 1,001 | 150.56 | 624 |
| Buffalo (E. A. Begbie) | 5 | 604 | 136.06 | 564 |
| Do. (sands) | — | 600 | 18.22 | 75 |
| Cam and Motor G.M. Co., Ltd. | RP | 13,095 | 4,455.50 | 18,642 |
| Do. (Lane Mill) | LM | 260 | 77.83 | 330 |
| Campania (G. C. Hooper) | 3 | 546 | 52.06 | 216 |
| Do. (sands) | — | 148 | 95.79 | 397 |
| Carlie Diem (J. H. E. Worrall) | (5) | 9 | 17.1 | 7 |
| Chadhunt (slags) | — | — | 4.02 | 16 |
| Concession (Concession plant) | — | 1,516 | 166.52 | 690 |
| Do. (sands) | — | 1,080 | 34.36 | 142 |
| Dalry (Macdonald & Sale) | 1 C | 2,000 | 50.47 | 209 |
| Do. (sands) | — | 2,000 | 107.99 | 448 |
| Dalry 1 W. (Macdonald & Sale) | 5 | 500 | 48.16 | 200 |
| Do. (sands) | — | 300 | 42.07 | 174 |
| Dawn (Arrow Syndicate) | 5 | 472 | 174.68 | 724 |
| Do. (sands) | — | 351 | 36.59 | 151 |
| Dreadnought (W. E. Masters) | 5 | 64 | 22.46 | 93 |
| Eiffel Blue (Willoughby's Cons. Co.) | 10 | 1,265 | 498.72 | 2,067 |
| Do. (sands) | — | 810 | 44.59 | 185 |
| Eileen Mannah Mining Co., Ltd. | 12 2T | 3,885 | 666.69 | 2,764 |
| Do. (sands) | — | 5,187 | 1,227.96 | 5,090 |
| Do. (slimes) | — | — | — | 24 |
| Enney Extension (E. G. Goodyer) | 5 | 750 | 194.42 | 806 |
| Do. (sands) | — | 360 | 42.17 | 175 |
| Fiasco Kaiser (Banner & Bircumshaw) | 5 | 470 | 35.29 | 146 |
| Giant Mines of Rhodesia, Ltd. | 30 | 7,200 | 887.39 | 3,763 |
| Glasgow Mines, Ltd. | 5 | 540 | 132.65 | 551 |
| Do. (sands) | — | 224 | 47.83 | 198 |
| Glencairn (Pickstone G.M., Ltd.) | 5 | 689 | 319.29 | 1,324 |
| Do. (sands) | — | 1,050 | 127.54 | 529 |
| Golden Valley (J. Mack) | 10 | 1,137 | 522.80 | 2,167 |
| Do. (sands) | — | 646 | 112.78 | 468 |
| Guelph (J. & M. Davidson) | 3 | 108 | 31.38 | 131 |
| Heroine (Rowley & Rollstone) | 1 H | 460 | 49.78 | 206 |
| Inez (H. C. Fitzgerald) | 10 | 500 | 56.17 | 233 |
| Inkerman (I. J. Minnaar) | 5 | 380 | 200.27 | 830 |
| Do. (sands) | — | 320 | 86.13 | 357 |
| Jessie (Webster & Beangstrom) | — | 220 | 45.01 | 186 |
| Just in Time (C. Somerset) | 2 | 150 | 68.21 | 366 |
| Kanyemba (Banner & Bircumshaw) | 10 | 630 | 266.64 | 1,186 |
| Do. (sands) | — | 420 | 73.55 | 365 |
| Do. (slimes) | — | 184 | 27.41 | 114 |
| Masterpiece No. 2 (J. M. Frauder and Co.) | 5 | 390 | 94.65 | 392 |
| Mid-Lothian (A. F. Johnston) | 2 | 20 | 6.42 | 27 |
| Monte Carlo (Monte Carlo Synd.) | 1 H | 300 | 64.29 | 266 |
| Natra (S. H. Hemlock) | 5 | 713 | 50.73 | 210 |
| Oleander (O. T. de Villiers), August | — | 200 | 18.11 | 75 |
| Do. (clean up) | — | — | 35.57 | 147 |
| Owl (A. Rolfe) | 10 | 1,350 | 1,426.18 | 5,912 |
| Do. (sands) | — | 1,653 | 416.78 | 1,728 |
| Owl Extension (Cribb & Secar) | 5 | 786 | 209.33 | 868 |
| Do. (sands) | — | 810 | 78.97 | 327 |
| Pomposo (J. Knott) | 2N 1P | 264 | 25.59 | 106 |
| Revie (R. R. Aitken) | 5 | 890 | 195.63 | 811 |
| Do. (sands) | — | 700 | 75.99 | 315 |
| Seigneurie (Seigneurie Syndicate) | 10 | 924 | 140.46 | 582 |
| Do. (sands) | — | 850 | 34.39 | 143 |
| Shepherds (Phoenician (R.) Co.) | 5 1T | 800 | 154.21 | 639 |
| Do. (sands) | — | 800 | 138.58 | 575 |
| Do. August | — | 880 | — | — |
| Third Etua G.M., Ltd. | 1 C | 1,250 | 324.57 | 1,347 |
| Do. (sands) | — | 1,520 | 75.79 | 315 |
| (Undeclared slimes) | — | — | — | 1 |

| | No. of stamps treated | Tons | Yield, ozs. | Value, £ |
|--------------------------------------|-----------------------|------|-------------|----------|
| Tantalus (P. Gallagher) | 5 | 26 | 11.01 | 46 |
| What Cheer (H. Moser) | 10 | 690 | 234.97 | 974 |
| Do. (sands) | — | 375 | 47.25 | 106 |
| White Rose | 2 | 217 | 63.06 | 262 |
| Other sources (R. J. Bray), clean up | — | — | 1.99 | 8 |
| Do. do. | — | — | — | 90 |
| Hartley district total | | | 16,029.51 | 66,933 |

LOMAGUNDI DISTRICT—

| | | | | |
|---|----------|-------|----------|--------|
| Alluvial | — | — | 203.96 | 839 |
| Angwa B. (F. L. Standen) | 5 | 723 | 109.10 | 452 |
| Crescent (Crescent Syndicate) | — | 245 | 35.19 | 141 |
| Colorado (Diggers Syndicate), clean up (June) | — | — | 5.88 | 24 |
| Devonia (F. Brown), Aug. & Sept. | 2 | 405 | 44.15 | 183 |
| Eldorado Banket G.M. Co., Ltd. | 20 1C 4P | 4,099 | 1,919.61 | 8,062 |
| Do. (sands) | — | 4,124 | 512.40 | 2,152 |
| Golden Kopje Prop. Mines, Ltd. | 60 3T | 9,795 | 611.69 | 2,569 |
| Do. (slimes) | — | 9,795 | 1,535.71 | 6,450 |
| Do. (slags) | — | 9 | 44.41 | 178 |
| May (May Syndicate) | 5 | 340 | 40.07 | 166 |
| Do. (sands) | — | 180 | 19.21 | 80 |
| Do. (clean up) | — | — | 51.93 | 215 |
| Mediterraneo (Schley & Smith), sands | — | 120 | 12.99 | 54 |
| Lomagundi district total | | | 5,146.36 | 21,565 |

MAZOE DISTRICT—

| | | | | |
|------------------------------------|-------|-------|----------|--------|
| Black A. (Black Mining Syndicate) | 5 | 250 | 123.87 | 513 |
| Botha H. (Clarkson & Sons) | 2 H | 1,030 | 12.87 | 53 |
| Do. (sands) | — | 820 | 46.09 | 191 |
| Chin (Arrow Syndicate, Ltd.) | 5 1P | 886 | 115.67 | 480 |
| Do. (sands) | — | 397 | 55.11 | 228 |
| Do. (slimes) | — | 489 | — | — |
| Day Dawn (Day Dawn Trib.) | 2 | 94 | 44.92 | 186 |
| Do. (sands) | — | 180 | 44.51 | 184 |
| Jumbo G.M. Co., Ltd. | 5 | 560 | 207.86 | 862 |
| Kimberley (Mash.) G.M. Co., Ltd. | 8N 2T | 4,850 | 849.96 | 3,605 |
| Do. (sands) | — | 4,850 | 414.81 | 1,749 |
| Kingsley Hoard (A. S. Warwick) | 5 | 663 | 112.37 | 444 |
| London (Shashi Synd.), clean up | 2 | 26 | 5.19 | 22 |
| Micky (Micky Syndicate) | 2 | 384 | 110.50 | 458 |
| Mitre 8 (E. W. L. Noaks) | 2 | 85 | 74.36 | 308 |
| Moffat (Laing & Marshall) | 2 | 72 | 22.62 | 95 |
| Peveril of Peak (Mrs. Southey) | 2 | 25 | 10.46 | 43 |
| Promoter 1 (F. C. Croxford) | 1 C | 2,020 | 68.81 | 285 |
| Do. (sands), B. H. Jones | — | 1,900 | 81.55 | 338 |
| Rosa (B. G. Byerley) | 2 | 407 | 136.84 | 567 |
| Do. (sands) | — | 506 | 55.80 | 231 |
| S. D. C. I. N. (H. S. Plant) | 2 H | 1,599 | 58.40 | 242 |
| Venus (L. W. Southey) | 2 | 53 | 26.31 | 192 |
| Vesuvius C. (Cunningham & Allison) | 2 1P | 500 | 258.12 | 1,070 |
| Xmas (A. Chiappini), sands | — | 600 | 38.25 | 159 |
| Mazoe district total | | | 2,995.45 | 12,527 |

SALISBURY DISTRICT—

| | | | | |
|---------------------------------------|--------|--------|-----------|--------|
| Alpes (P. Zaffere) | 5 | 202 | 248.73 | 1,031 |
| Do. (sands) | — | 300 | 48.43 | 201 |
| Ceylon (Ceylon Mine Synd.), slimes | — | 1,274 | 70.17 | 291 |
| Cross-your-Luck (W. A. Hoole), August | 2 | 176 | 52.54 | 218 |
| Joking (Harrison & Drabble) | 2 | 283 | 369.07 | 1,530 |
| Do. (sands) | — | 280 | 128.09 | 531 |
| Joyce (New Beatrice G.M. Co.) | 10 | 503 | 108.33 | 449 |
| Do. (sands) | — | 335 | 74.24 | 308 |
| Mashona (H. S. Plant) | 2 | 220 | 37.62 | 156 |
| Mont d'Or (Claxton & Bussell) | 5 | 310 | 144.12 | 567 |
| Olympus C. (Olympus G.M. Co.) | 5 | 500 | 119.68 | 496 |
| Planet (Planet Tribute Synd.) | 10 2P | 1,002 | 258.10 | 1,070 |
| Do. (slimes) | — | 1,002 | 231.79 | 961 |
| Radnor L. (Radnor Mines, Ltd.) | 5 2P | 1,174 | 355.07 | 1,472 |
| Shamva Mines, Ltd. | 56N 9T | 49,169 | 2,621.50 | 11,010 |
| Do. (sands) | — | 25,973 | 6,591.88 | 27,686 |
| Do. (slimes) | — | 22,146 | — | — |
| Do. (slags) | — | — | — | 30 |
| Trio (Trio Syndicate) | 5 | 410 | 185.81 | 770 |
| Salisbury district total | | | 11,683.93 | 48,968 |

| UMTALI DISTRICT— | | | |
|--|----------------|--------------|----------------------|
| | No. of stamps. | Tons treated | Yield. ozs. Value. £ |
| Bessie and Gem (J. Buchanan) | 5 | 922 | 31.64 131 |
| Do. (sands) | — | 922 | 132.70 550 |
| Elgin (Meikle & Davis) | (5) | 223 | 9.33 40 |
| Do. (sands) | — | 45 | 2.25 10 |
| Golden Adelaide (R. P. Synd.) | 3 | 180 | 16.36 68 |
| Golden Gate D.B. (Meikle and Davis), sands | — | 3,100 | 147.31 625 |
| Golden Quarry (H. Pollack) | 5 | 230 | 22.13 92 |
| Kent Mines, Ltd. | 10 | 1,227 | 308.10 1,277 |
| Do. (sands) | — | 1,227 | 94.66 392 |
| Kent (J. H. Hall), sands | — | 600 | 22.66 94 |
| Liverpool 38 (R. G. Snodgrass) | 5 | 760 | 99.50 412 |
| Do. (sands) | — | 300 | 43.24 179 |
| Liverpool A. (Meikle & Davis) | 5 | 132 | 11.62 49 |
| Do. (sands) | — | 60 | 4.50 19 |
| Montezuma G.M. Co., Ltd. (slimes) | — | 100 | 87.45 362 |
| Odzi (J. F. Kapnek) | 5 | 650 | 13.92 348 |
| Oriental (A. Howat) | 5 | 320 | 16.51 68 |
| Penhalonga (G. W. Randall) | 5 | 117 | 27.37 113 |
| Pilgrim (Cawood Bros.) | 5 | 500 | 58.37 242 |
| Quagga (P. Young) | 1 11 | 175 | 28.92 120 |
| Rainbow (Rainbow Syndicate) | 5 | 100 | 15.05 62 |
| Rezende Mines, Ltd. | 70 | 9,000 | 968.89 4,111 |
| Do. (sands) | — | 3,279 | 313.02 1,328 |
| Do. (slimes) | — | 1,210 | 128.28 544 |
| Do. (concentrates) | — | 134.93 | 372.30 1,580 |
| South Perthshire (J. Meikle) | (5) | 250 | 43.39 184 |
| Do. (sands) | — | 105 | 27.02 114 |
| Streatham (Meikle & Davis) | (5) | 532 | 22.30 95 |
| Do. (sands) | — | 90 | 5.85 25 |
| Two Sisters (Mrs. S. A. A. J. Harris) | 2 | 45 | 27.96 116 |
| Umtali A. (J. Meikle) | (5) | 100 | 3.72 16 |
| Do. (sands) | — | 45 | 1.80 8 |
| Umtali B. (J. Meikle) | (5) | 172 | 14.73 62 |
| Do. (sands) | — | 30 | 34.5 15 |
| Virginia 1 (F. Young), sands | — | 400 | 32.68 136 |
| Umtali district total | | 3,228.93 | 13,587 |
| VICTORIA DISTRICT— | | | |
| Empress (S.A. Pros. & Con. Synd.) | 8 | 1,380 | 178.87 741 |
| Do. (sands) | — | 750 | 97.36 404 |
| Texas (Victoria Mines, Ltd.) | 10 | 1,000 | 236.33 980 |
| Do. (sands) | — | 650 | 129.67 537 |
| Victoria district total | | 642.23 | 2,662 |
| (P) Grinding Pan; (BM) Ball Mill; (T) Tube Mill; (H) Huntington Mill; (GR) Gates Rolls; (B) Ball Mill; (Pn) Pneumatic Stamp; (N) Nissen Stamp; (C) Chilian Mill. | | | |
| ASBESTOS. | | | |
| Bulawayo District— | | | |
| Birthday A. (N. Moore) | | 84.65 | £1,356 |
| Birthday C. (Mrs. Longhurst) | | 12.00 | 192 |
| Nil Desperandum (E. Machell) | | 33.00 | 528 |
| Gwelo District— | | | |
| Backjoy (J. S. Joel) | | 14.50 | 232 |
| Waterbuck (Waterbuck Syndicate) | | 5.00 | 75 |
| Victoria District— | | | |
| Balmain (P. T. Hoad) | | 26.25 | 420 |
| King Asbestos (Rhod.), Ltd. | | 250.00 | 4,000 |
| Regina (P. A. Nightingale) | | 21.75 | 348 |
| Victoria (Rhod.) Asbestos, Ltd. | | 221.56 | 3,545 |
| | | 668.71 | £10,696 |

SUMMARY.

| | Value. |
|--------------------|-----------|
| Gold, ounces | 77,045.85 |
| Silver, ounces | 16,494.33 |
| Copper, tons | 304.48 |
| Coal, tons (sales) | 47,039.00 |
| Chrome iron, tons | 1,414.59 |
| Asbestos, tons | 668.71 |
| Ironstone, tons | 292.97 |
| Diamonds, carats | 82.25 |

Grand total value £388,095

COMPARISONS.

| Gold output— | Ounces. |
|-----------------|-----------|
| August, 1916 | 80,908.84 |
| September, 1916 | 77,045.85 |
| Decrease | 3,862.99 |
| Gold output— | Ounces. |
| September, 1916 | 77,045.85 |
| September, 1915 | 76,929.45 |
| Increase | 116.40 |

EMPTY DRUMS.

REUNERT & LENZ are open to purchase Second-hand Drums (4 to 10 gallons preferred) in sound condition, suitable as containers for liquid.

Would be prepared to enter into arrangements to take regular supplies of suitable empty drums.

Tenders, stating lowest prices, also quantities, description and size of containers offered, to be addressed to—

REUNERT & LENZ, LTD.,
Box 92, JOHANNESBURG.

FRANK E. NOTT, Private Detective.

P.O. Box 1587. 80 & 81, PERMANENT BLDGS. Telegrams: "SLEUTH"

Divorce, Slander, Watching, etc. Delicate negotiations in all parts of the world. Consultations Free.

Users or buyers of

Disinfectants, Germicides, Bleaching Agents, etc.

MUNICIPALITIES, RAILWAYS, MINES, WATER WORKS, LAUNDRIES,

Manufacture your own by the

NEW ELECTRO CHEMICAL PROCESS.

A Proved Success. Local Products. Cheap and Highly Effective.

CONSULT:—

HOLMAN JAMES, 11, National Bank Buildings, Simmonds St., JOHANNESBURG.

P.O. Box 5685.

PHONE 4429.

Industrial Section.

COTTON GROWING IN SOUTH AFRICA.

An Industry of the Near Future.

LAST week reference was made to the industrial uses of maize, which up to the present have been largely neglected in this country. To-day it is proposed to deal briefly with cotton growing, for there is no agricultural industry of greater national importance than the production of cotton. The raising of the standard of living and comfort and the advance of civilisation throughout the world have created a rapidly-increasing world demand for the only article of the kind that can fill the requirements of cheapness. It is estimated that there are always about 250,000,000 people who go almost naked, but directly civilisation touches them a demand for cotton goods arises. This ever-increasing market is naturally creating considerable anxiety in Great Britain, for it may mean, in fact has already meant to some extent, a diversion of some of the present sources of England's supply of raw cotton into other channels. That is why large sums have been expended during late years in testing new cotton fields in various parts of the world. In Egypt and the Soudan millions have been spent in irrigation works. In Nyassaland, Nigeria, and Uganda, the railways have been extended, in some cases a thousand miles inland, for the express purpose of bringing under crop, especially cotton, the rich districts of the interior. Great Britain is unfortunately dependent on foreign countries for 80 per cent. of the raw cotton she needs. The world requires more than 20,000,000 bales of 500 lbs. each, and the United States of America supply the major portion of this. It is claimed that the States have produced two-thirds of the cotton consumed in the last seventy years. While such an enormous market exists it is not a little surprising that in South Africa, to many parts of which the crop is indigenous, so little has been done, for the majority of the cotton districts of South Africa possess many advantages over other countries. No vast outlay of capital in irrigation works, as in Egypt, nor on the construction of railways, is here required. When not too remote from a port, and in a district possessing a climate adapted to the crop, cotton should appeal to our farmers as an alternative, if not a substitute, for the less valuable crop, maize. That cotton of excellent staple can be produced has already been demonstrated. It is indeed now proved that South Africa can produce cotton of better quality and longer staple than America. Yet this year we have not contributed more than 400 bales towards the world's annual needs of twenty million bales. Happily there seems to be an awakening in parts of the country as to the economic value of this crop. A big increase is looked for in yield in the Rustenburg district, so much so that two mills have lately been erected there for the ginning and handling of the large quantities expected. Speaking in Natal recently, Mr. Schertzius, Chief of the Division of Tobacco and Cotton, predicted a boom in cotton growing in that province as soon as farmers realise its prospects. In 1915 £48,606 worth of cotton seed oil alone was imported into South Africa. The by-products of cake and oil are easily obtained and add enormously to the value of the crop. As an indication of the value of the cotton crop, the statistics relating to the output of the Southern States of America are instructive. In the cotton belt of America, which it should be noted is also an excellent maize belt, the cotton crop of 1912 produced the enormous total of 16,000,000 bales of 500 lbs. lint cotton, which would represent to-day for fibre alone over £200,000,000 sterling, while

the subsidiary industries of oil and cake were also sources of enormous wealth. The prosperity of this part of the States, one of the wealthiest agricultural districts of America, is founded very largely on the cotton crop. Cotton possesses many advantages over such crops as maize. It is of much greater value, is far less exhaustive, and carries in comparison with its value, a smaller freight. The market for cotton is universal and is not subject to great fluctuations. The demand for the staple is steady, certain, and not, as in the case of so many South African products, affected by local conditions. The land values ruling in the cotton growing districts of America are a fair indication of the value of the crop. There land is difficult to obtain and commands from £20 upwards per acre. In Egypt cotton land varies in price from £60 to £100 per acre, while the rent charged by the companies to their tenants is £4 per acre per annum. For land rented under conditions other than those laid down by the companies no less than £12 per annum is sometimes charged. The proof that these rates are profitable is shown by the fact that Great Britain is able to buy from Egypt annually over £23,000,000 worth of raw cotton and seed. Cotton would certainly appear to be a crop worthy of more attention than has been afforded it in South Africa. The Government has done much on their experimental stations towards proving its possibilities, but in order to introduce and develop the industry on the farms organised efforts on lines outside purely Government experimental work are necessary. As a native crop cotton is unrivalled, and its cultivation would soon spread to the native districts, for the development of which, and the training of the native farmers, the various Mission Stations might be profitably utilised. Except perhaps in Basutoland the native in South Africa is not conspicuous as an agricultural industrialist. Yet in Uganda and Nyassaland he is found growing cotton in sufficiently large quantities to enable an export trade to be carried on. The same thing should be encouraged here, for the native has the labour necessary for picking, an operation which has not yet been successful by mechanical means, owing largely to the fact that the whole of the crop does not ripen at one time. Cotton picking is light and easy work, and most native races like it for that reason. Considering the value of the crop, and the employment that would be created by its distribution and in obtaining the by-products already mentioned, it is regrettable that the native is not being induced to take it up. Cotton growing is in short an industry in which both whites and blacks will take a share when our Department of Agriculture realises the necessity for stimulating the development of all forms of agriculture on the definite lines of encouragement that other countries have found to be necessary. One of the first necessities is a mill for the manufacture of oil and cake from the seed, which at present is entirely wasted in this country. If private enterprise cannot be persuaded to undertake this, a mill might well be established by Government, as has been done in Salisbury, Rhodesia, for the expression of oil from ground nuts and other oil bearing products.

ELECTRIC WELDING CO., 20, Joubert Street,
C/o Fox Street,
Telephone No. 2661. JOHANNESBURG.

Latest Patent Process for Welding Iron or Steel, Malleable Cast Iron, Mangane Steel and Steel Castings. New Teeth Welded on Steel Gear Wheels without Softening or Distorting the Wheel. Worn Shaft Journals built up to Original Diameter. Torn Keyways Rebuilt, etc. Numerous Crank Shafts Successfully Welded.

JAMES WEST & CO.

CERTIFICATED MINING AND MECHANICAL ENGINEERS,
GEOLOGISTS AND METALLURGISTS.

Consulting Specialists in all branches of Diamond Mining,
Washing and Recovery.

Formerly of De Beers Consolidated Mines, Dutoitspan, Wessleton Mines, Koffyfontein Mines, Premier (Transvaal) Diamond Mining Co., New Eland Diamonds, Ltd., etc., etc.

186, Stock Exchange,

Box 4253. Telephone 3659.

JOHANNESBURG.

Engineering Notes and News.

THE PROSPECTS OF THE CARBONISATION OF COAL, WITH BY-PRODUCT RECOVERY, AS A SOUTH AFRICAN INDUSTRY.—II.

[By S. B. BILBROUGH, B.A.]*

Coming now to concrete figures of the proposition from the engineer's and financier's point of view, I am quite aware that each seam of coal and each case should be considered separately. No particular colliery can absolutely go by the figures given below without their own special conditions being gone into, and the merits and demerits of each case examined separately and weighed up carefully. The chief figures which will cause differences between each case will be the cost of the coal and the nitrogen content, and in some special cases the prospect of selling the power gas to an electric supply company. But I will take what I consider the nearest average cases, and the figures can be altered accordingly to suit any special case you may have in mind, and many figures are common to all cases.

CAPACITY OF PLANT.

Ten Thousand Tons of Sulphate Per Year.—Boiler efficiencies fired by gas or mechanical stokers may reach 80 per cent. and over, but I think 75 per cent. a safer figure to take. The efficiency of gas producers as energy suppliers in the form of power gas may reach 86 per cent., but with recovery of sulphate and the necessary cooling and washing of the gases, the efficiency may reach about 70 per cent., and to be conservative we will call it 65 per cent., that is, the heat energy contained in the gas produced per ton of coal gasified is 66 per cent. of the heat contained in the ton of coal (when worked with ammonia recovery plant). We will take the following data: Boiler efficiency, gas fired, 75 per cent.; boiler efficiency, coal fired, 75 per cent.; heat efficiency of producer, 66 per cent.; sulphate recoverable from 1 ton of coal, 112 lbs.; price of sulphate, £14 per ton (the present price is about £17 10s.); 2,700 lbs. of coal burnt direct give 1,000 kilowatt hours or units. Experts on power plant and boiler efficiencies need not look for a contentious discussion on the above data, because, as we shall see later on, the power gas energy plays quite a small part in the prospects of a sulphate producing industry, and if the efficiency figures for gas firing of boilers were put at zero the revenue of the company would only be decreased by about 10 per cent. All that concerns the electric supply company is that it gets steam from gas firing as cheaply as it could get it from coal. After this it is only a question of applying gas to the boilers instead of operating mechanical stokers. The capacity of the gas producers would always be in excess of the maximum requirements of the electric supply company. Now (by direct firing) 2,700 lbs. coal give 1,000 kilowatt hours. This figure may, of course, be altered to suit the various classes of coal, but it makes little difference to the ultimate prospects of the Ammonia Company. Energy contained in steam (direct firing by coal)=75 per cent. of heat in coal. Energy contained in gas from gas producer is 66 per cent. of heat in coal. Energy contained in steam when boilers are fired by gas from gas producers is 75 per cent. of heat contained in gas. Hence the energy contained in the steam generated by gas firing is 66 per cent. \times 75 per cent. =50 per cent. of the heat contained in the coal, as against 75 per cent. if the steam is generated by direct firing with coal. Hence, as the coal used to give 1,000 units is 2,700 lbs. by direct firing, it would take $2,700 \div 75 \div 50 = 4,050$ lbs. to give 1,000 units when fired with producer gas.

*Paper read before the S.A. Institution of Engineers.

Now, the coal to produce 10,000 tons of sulphate per year is 200,000 tons, capable of supplying gas to operate a plant of about 12,600 kilowatts. The equivalent coal which would be used if boilers were direct fired is 133,000 tons. Hence we have:—

TABLE I.

| Electric Supply Co.'s point of view buying gas to generate 12,600 kilowatts. | | Equivalent price of gas per kw. year. |
|--|---------------|---------------------------------------|
| Coal | Cost of coal. | |
| 133,000 tons at (2,240 lbs.) | | |
| s. d. | £ | s. |
| 3 0 | 20,000 | 31·7 |
| 2 6 | 16,666 | 26·4 |
| 2 0 | 13,333 | 21·2 |
| 5 0 | 33,333 | 52·8 |
| 8 0 | 53,333 | 84·5 |
| 10 0 | 66,666 | 105 |

The Electric Supply Company, knowing the price of its coal, can see at a glance what it should pay per kilowatt year for gas power. The Ammonia Company likewise can see what revenue it may expect from selling its gas. *Ammonia Company's point of view.*—Capacity of plant, 10,000 tons of sulphate per year. Coal gasified, 200,000 tons per year. Total power generated by gas, 12,600 kilowatts, of which we will assume that the company can sell only 60 per cent. of its power gas. Capital outlay—Cost of producers with ammonia recovery complete plant erected, £160,000; working capital and extras (say) £140,000; total, £300,000. The extra capital is mentioned simply to give an idea of the rate of profit. *Working expenses per ton of sulphate (2,240 lbs.).*—Working producers, recovery and sulphate plant, wages, repairs, maintenance, stores and acid, £4 10s.; depreciation of plant, 7 per cent. on £200,000 (say) £1 10s.; total expenses, less cost of coal, £6. Hence we have:—

TABLE II.

| 200,000 tons of coal at, per ton. | Cost of coal per year. | Cost of coal per ton of sulphate. | Total expenses per ton of sulphate. |
|-----------------------------------|------------------------|-----------------------------------|-------------------------------------|
| s. d. | | | |
| 3 0 | £30,000 | £3 0 0 | £9 0 0 |
| 2 6 | 25,000 | 2 10 0 | 8 10 0 |
| 2 0 | 20,000 | 2 0 0 | 8 0 0 |
| 5 0 | 50,000 | 5 0 0 | 11 0 0 |
| 8 0 | 80,000 | 8 0 0 | 14 0 0 |
| 10 0 | 100,000 | 10 0 0 | 16 0 0 |

Revenue.—Sulphate at £14 per ton, and power gas at rate in previous table, and we have the following Table III. for various prices of coal:—

Box 3807.

Tel. 5892.

NO MORE AIR LOSSES.

Pressed Steel
Bronze-Seated

ROCKWOOD UNIONS.

Rustless. - Airtight.
Tested to 1000-lbs. per sq. in.

H. ALERS HANKEY - - Sole Agent.

NEW AND UP-TO-DATE FOUNDRY will undertake to supply Castings of every description in Brass, Gun Metal, Phosphor Bronze, and Acid-resisting Metal. Duplicate Orders a speciality.

CENTRAL BRASS FOUNDRY,
49, POLLY STREET,
JOHANNESBURG
Quotations on receipt of particulars.

T. H. ROBERTS, Mechanical & Electrical Engineer,
148, Marshall Street, Johannesburg.

Armature Winding. Electrical Repairs of all descriptions.
Electrical Plants estimated for and erected. Contracts entered into for maintaining Power Plants.

All kinds of New and Second-hand Electrical Plant for Sale.
P.O. Box 1416. Telephone 5465.

TABLE III.

Ammonia Company selling all its sulphate and 60 per cent. of its power gas.

| Coal at per ton. s. d. | Expenses Total. | Revenue. | | Total revenue. | Profit. | Return per ton of coal. s. |
|------------------------------|--------------------|-----------|---------|-------------------|---------|----------------------------------|
| | | Sulphate. | Power. | | | |
| 3 0 | £90,000 | £140,000 | £12,000 | £152,000 | £62,000 | 9·2 |
| 2 6 | 85,000 | 140,000 | 10,000 | 150,000 | 65,000 | 9·0 |
| 2 0 | 80,000 | 140,000 | 8,000 | 148,000 | 68,000 | 8·8 |
| 5 0 | 110,000 | 140,000 | 20,000 | 160,000 | 50,000 | 8·0* |
| 8 0 | 140,000 | 140,000 | 32,000 | 172,000 | 32,000 | 6·2* |
| 10 0 | 160,000 | 140,000 | 40,000 | 180,000 | 20,000 | 5·0* |

*Allowing 2s., 5s. and 7s. for railage, in addition to the expenses.

But there is another case to consider, and that is where the Ammonia Company's plant is at the colliery, and where there might be no sale for its power, the case of power being a glut in the market at that particular spot. In these circumstances we have:—

TABLE IV.

Ammonia Company selling sulphate only.

| Coal at s. d. | Expenses. | Revenue. | Profit. | Return per ton of coal. s. d. |
|------------------|-----------|----------|---------|--|
| 3 0 | £90,000 | £140,000 | £50,000 | 8 0 |
| 2 6 | 85,000 | 140,000 | 55,000 | 8 0 |
| 2 0 | 80,000 | 140,000 | 60,000 | 8 0 |

With sulphate at £16 per ton, the profits would be £70,000, £75,000 and £80,000, which represents about 25 per cent. on £300,000, or about 18 per cent. if the revenue from sulphate is £14 per ton. So here we have the extraordinary case of a profitable industry, making sulphate as a sole product; and, after blowing all the power gas into the air,

leaving a return of 18 per cent. to 25 per cent. on a very considerable capital outlay. The return per ton of coal gasified is 8s. with sulphate at £14, and is 10s. per ton with sulphate at £16. It will be observed that revenue from sale of power gas is not comparatively a high figure. Also, that where coal costs 8s. per ton, due to railage charges, the total profits are £32,000, whereas if the Ammonia Company had erected its factory at the colliery, and paid 3s. per ton of coal, it would make a profit of £50,000 after blowing all its power gas to the atmosphere. It appears to me then that wherever the railage exceeds 2s. per ton of coal, the proposition of replacing the mechanical stokers of the various power stations by producer gas plants with ammonia recovery is not a feasible proposition, even though it does show a profit of £32,000, for the simple reason that these profits could be nearly doubled by erecting the ammonia plant at the colliery and wasting all the gas. I hope this will dispel the theory that coal is being wasted, because it is not being carbonised in producers at the large power stations on the Rand gold mines. The present means for generating such power where the railage on the coal exceeds 2s. per ton is therefore the best, and it will pay the Ammonia Company best to rather waste its power gas than pay 2s. railage or more on its coal. I think there is every reason to believe that the Ammonia Company will sell at least 60 per cent. of its power gas, even though erected at a colliery far away from any existing electric supply company.

(To be continued.)

PERSONAL.

Mr. W. Elliott, formerly manager of the York Mine, Krugersdorp, and lately manager of the Welgedacht Mine, died last Sunday week after a short illness, from pneumonia. Mr. Elliott, some years ago, was in charge of prospecting operations upon a block of claims at Rietkuil.

* * * *

The official list of certificates issued by the Mines Department for the month ending October 31st, 1916, is as follows: Mine Managers' Certificates (Metalliferous Mines): H. A. Adams, A. E. Baker, J. Chilton, Y. H. M. Crosby, H. J. Hebbard, E. H. A. Joseph, T. A. Malpage, H. R. Martin, A. P. Nellmapius, W. J. Pope, R. Ramsay, J. Simpson, J. C. Stokoe, F. J. van Aardt, E. J. Wiseman; (Collieries): T. Coulter, C. W. Thomson. Mine Overseers' Certificates (Metalliferous Mines): J. Corrigan, A. A. de Greef, A. Hooper, B. E. Pollard, W. A. Stewart, J. A. Wilkinson. Mechanical Engineers' Certificates (Mines): S. F. May. Electrical Engineers' Certificates (Mines): P. G. Timms.

The Scientific Instrument Works,

Phone 3552. 134, FOX STREET, JOHANNESBURG. P.O. Box 3901.

Mining Transits and Surveying Instruments a Speciality.

Manufacturers of SURVEY SPADS, and any Mechanical or Electrical Accessories.

Repairs to all kinds of Scientific Instruments, Calculating Machines, Speedometers, Microscopes, etc., etc.

BARFORD & Co., Ltd. (Late Bull & Oehman, Ltd.)

Scientific and Mathematical Instrument Department.

Large Stocks of Theodolites, Levels, Steel Metallio Tapes and General Surveying Appliances.

REPAIRS of Scientific Instruments a SPECIALITY.

Phone 1221. 59, Rissik Street, Johannesburg. Box 4040.

Box 3807.

'Phone 5892.

DELTA METAL

H. ALERS HANKEY - - - Sole Agent.

S. SYKES & Co., Ltd., Johannesburg.

P.O. Box 2303. Telegrams: "PSYCHE."

Mechanical and Electrical Engineers.

REPRESENTATIVES OF

POWER & MINING MACHINERY CO., N.Y.

GYRATORY & JAW CRUSHERS FOR ANY CAPACITY.

ALL KINDS OF MINING MACHINERY.

Rhodesian Branches: BULAWAYO and SALISBURY.

Company Meetings.

KNIGHTS DEEP.

The 18th ordinary general meeting of shareholders in the Knights Deep, Ltd., was held Friday, Sept. 22, in the board-room, Consolidated Goldfields Buildings, when there were present Messrs. Douglas Christopherson (chairman), A. G. Gill, H. H. Oldroyd, W. S. Smits, D. W. Rossiter, J. E. Kent, C. Hely Hutchinson, R. O. Stone, and A. C. Grant (secretary).

The Chairman said:—Gentlemen,—Owing largely to the better native labour conditions, which have enabled us to mill a bigger tonnage, the result for the year ended July 31, 1916, show an improvement. The tonnage milled was increased by 134,000 tons to 1,307,000 tons, and there was an improvement in the recovery of over 2½d. per ton, which, with the bigger tonnage, produced an increase in the amount of gold won of £116,000. The total gold won for the year was just under £1,000,000. Costs increased in total by £83,000, owing to the bigger tonnage dealt with, but the cost per ton milled was only fractionally higher than last year. Underground costs, including development, of which 1,300 less footage was done as compared with last year, increased by 1½d. per ton, while surface costs were lower by 1d. per ton. The total costs per ton milled during the year, including the cost of renewals, worked out at 12s. 2.322d., as compared with 12s. 2.023d. for 1915, and considering the difficulties under which the mines are working in these times, I think you will agree that this result reflects considerable credit on the management. The careful economy which has been practised in the consumption of stores has, especially in the case of this company, acted as an offset against the large increases in prices, as compared with before the war.

The Net Result.

The profit on working for the year was £198,000, some £33,000 better than 1915 and £55,000 better than in 1914. Other charges, however, including phthisis compensation, expenditure on allowances to men and dependents of men away on service, debenture charges, profits tax, etc., show an increase of £13,000. The nett balance carried to appropriation account for the year was £173,000, an increase of £20,000 over 1915. This increase in profits enabled the company to pay 15 per cent. in dividends during the year, as against 12½ per cent. for the year 1915. The balance remaining to the credit of appropriation account at the end of the year was £160,000, of which some £133,000 was represented by stores and other realisable assets. Stores alone figure at £106,000, as against £66,000 at July 31, 1915, an increase of £40,000, which shows the extent to which we have, owing to present conditions, considered it necessary to purchase stores in advance. Investments, however, show a considerable reduction in book value, owing to the sale during the year of the whole of the company's holding in Victoria Falls preference shares, and portion of its holding of ordinary shares of that company.

You will see from the balance sheet that the small area to which I referred last year has been handed over to the Witwatersrand G.M. Company for £3,500. This transaction is mentioned

in the directors' report, in order that you may confirm the same when confirming the report and accounts now before you. The only other item of note in the balance sheet is the disappearance of the debenture issue. This issue was made in 1898 for £400,000, though, owing to the incidence of the South African War, which broke out in 1899, the company was unable to make the best use of the money for some four years after the date of issue. For the current and future years the company will be relieved of the annual charges in this connection, which for the year ended July 31, 1916, amounted to £26,000. That, I think, deals with all that is necessary on the accounts side.

Ore Reserves.

Turning now to the ore reserves, you will see from the superintending engineer's report that they are estimated at 2,614,000 fully developed mine tons, of an average value of 4.4 dwts., and 71,000 tons partially developed, whose value is taken at 4.1 dwts. The fully developed tonnage is slightly less in quantity than at the end of the year 1915, but there is an improvement of .15 of a dwt. per ton in the estimated value. Reclamation rock, with the exception of a small proportion of which the tonnage and value can be computed approximately, is excluded from our ore reserve estimates, though during the year 1916 82 per cent. of the tonnage milled came from this source. The average estimated recovery from reclamation rock was 3.17 dwts. per ton milled during 1916 as against 3.03 dwts. per ton in 1915, while the ore obtained from stope faces had an average recovery value during each of the two years of 4.24 dwts. This reclamation rock, taken by itself, is usually capable of being worked at a much lower cost than the ordinary mine tonnage, and therefore the margin of profit is considerably enhanced, and in addition it has to be remembered that the milling of these large extra tonnages has a directly favourable effect on the average working costs, and thus makes possible a larger profit than could otherwise be obtained on the ore drawn from areas included in the ore reserve figures.

Course of Development.

Development during the year has mostly been carried out in the eastern or original section of the mine where, as you have been previously informed, there is only a limited amount more development to be done. As time goes on the bulk of this work will be transferred gradually to the western, or Simmer East section.

Referring to the prospects for the current financial year, the position may be described on the whole as hopeful. If the best results are to be obtained by this company a sufficient native labour supply is essential, and for the near future, from present indications, there is reason to hope such a supply will be available. Another encouraging feature is the small increase in the value per ton of the ore reserves. If during the current year this will allow 3d. per ton to be added to the recovery grade, on an average of, say, only 105,000 tons crushed per month it would mean an additional £15,750. Further, there will be no charge on the profits for debentures, which, as I have said before, amounted to £26,000 last year. Against these

favourable points must be put any possible further increase in the cost of stores and mining material, and other disadvantages caused through the continuance of war which may adversely affect working costs. Viewing the position from to-day's outlook, and provided there are no unforeseen accidents to reduce profits materially for the next three months, there is good reason to think the dividend for the six months ending December 31 will be at the rate of 20 per cent. per annum.

Roll of Honour.

I regret to have to report that 10 of the company's employees have been killed or have died on active service, and a further 14 have been wounded or are missing. The names of the killed are: Captain N. S. Marshall, Privates James Royan, C. P. Brown, H. J. Hewitt, C. H. Brooks, C. A. C. Smith and R. B. Williams, all of whom were with the Oversea Contingent; and Lieutenant A. R. Flynn, Privates Walter Rowan and N. D. Southward, in East Africa.

The following employees have been wounded or are missing: During the German West campaign, Privates George Moreom and J. J. Torter, Oversea, Lieut. M. E. S. Archibald, Sergt. Hugh Keys, Gunner F. A. Watson, Privates D. W. McDonald, S. F. Kirkman, A. Clark, W. D. Kirkman, Leonard Flanagan, L. G. Williams, Frank Davies, in East Africa, Lance-Corpl. F. S. Dooks, and Private G. S. Moore. I am sure you will join with me in expressing our sincere sympathy to the relations of those who have died in the service of their country, and in the wish that those who have been wounded may have a speedy recovery.

In conclusion, I would like to express an appreciation of the services of Mr. Chalkley, the manager, and both the underground and surface staffs. A large number of the supervisory staff are away on active service, which has thrown additional work on the shoulders of those remaining behind, which under the circumstances has been accepted willingly. The work of watching closely details, not only of mining and reduction works operations, but also of administration generally, is so essential in the management of such a low grade proposition, as is the case here, that the extra work has meant a good deal more than one is apt to think. I now beg formally to move the adoption of the report and accounts.

Mr Gill seconded, and the motion was carried.

Messrs. W. H. Dawe and W. S. Smits, the retiring directors, were re-elected, on the motion of Mr. Hely Hutchinson, and Messrs. Douglas, Low and Co., and Charles Stuart were re-appointed auditors, on the motion of Mr. O'droyd.

WESTERN RAND ESTATES.

The 14th ordinary general meeting of shareholders in the Western Rand Estates, Ltd., held Sept. 30th, at the offices, Standard Bank Chambers, Mr. J. Waldie Peirson presided, and there were present Messrs. C. J. Watson, J. Wege, G. F. Mills, G. M. Pem-

berton, A. R. Peirson, T. J. Graham, W. G. Lay, and C. E. Peirson (secretary). There were represented 2,334.16 shares out of the total issue of 405,000.

The directors reported that there had been no change in the capital or extent of the property during the year. The buildings, machinery, and plant are in good order. All the woodwork on the property had been painted, including the head-gear, to which some repairs are being done, and precautions taken to guard against dry-rot in the timbers. The Government have not yet completed their proclamation of Gembokfontein and Venterspost, but the company nevertheless pays full wynpacht dues without the opportunity of receiving any revenue from claim licences. Permission to dispose of surplus water was still withheld by the Government.

The Chairman said:—Gentlemen,—Again we meet, as we have done on the last two occasions, under the shadow of the great war which still drags on, taking its daily toll of the flower of the Empire—a cruel sacrifice of brave, heroic, and noble lives cheerfully given for King

and country in the cause of right and justice. May we who are not permitted to go and fight do our bit when the call comes in the same spirit and with a profound admiration of the deeds of those who have gone, and a real sorrow and sympathy for those who have been left behind to struggle alone. One director and the sons of three others are at the front. We wish them God-speed. I have nothing to add to the report which has been circulated, and beg to move the adoption of the directors' report and account for the year ended June 30, 1916.

Mr. Watson seconded, and the motion was carried.

The retiring directors, Messrs. D. J. Pullinger, J. W. Peirson, E. J. Pullinger, D. H. Herbert, and G. J. V. Emsell, were re-elected, and the auditors, Messrs. G. M. Pemberton and E. Danckwerts, reappointed.

MACHAVIE G.M. CO., LTD.

The annual general meeting of the Corporation Syndicate, Ltd., was held in Johannesburg, on Friday last. The chair-

man, in presenting the report, said that no alteration had taken place in the share holdings in the Afrikaner Proprietary Mines, Ltd., and the Machavie G.M. Co., Ltd. No work had been carried out on the property of the Afrikaner Company during the period under review, the property being in charge of a caretaker. In regard to the Machavie, crushing operations were still being continued. He mentioned at the last annual meeting that this company was still conducting experiments in regard to the treatment of its ore, and he was now pleased to inform them that the erection of a hand rabble furnace on the company's property, to treat from 25 to 30 tons per day, has been completed. A large quantity of the ore had been put through this furnace, and, after roasting, treated in the usual manner by cyanide, with highly gratifying results. The Board of the Machavie were now considering the question of erecting a complete and up-to-date plant; together with the necessary additional furnace, etc., for roasting the ore. Development work was also being pushed ahead, the results obtained at date being of an extremely encouraging nature. The Corporation Company's cash balance at the close of the financial year amounted to £18,032 1s. 9d.

Speaking at the half-yearly meeting of shareholders of the Griqualand West Loan Trust and Agency Company, Ltd., at Kimberley, Sir David Harris said when they remembered that for a year and a half the diamond mines were closed down, that a large number of residents of Kimberley went to Europe and elsewhere to take part in the war, and that those who remained among the mining employees only received half-pay, when also they recollected that since January 1 last only about half the work normally done by

the mines had been carried on, and that but about half the number of white employees and natives were now engaged in the operations, meaning that there was a considerable shrinkage of the money put into circulation, and yet in face of these things the Agency had been able to pay during the whole time the customary annual dividend, this should have the effect of retaining the confidence of the shareholders. There was also the very encouraging fact that in Kimberley the value of landed property had not depreciated, but had been satisfactorily maintained. (Applause.)

10. ESTABLISHED 1884. 10.
THE LEADING FINANCIAL DAILY OF THE WORLD.

The Financial News

THE FINANCIAL NEWS has the largest circulation of any financial newspaper in the World.

ALL THE NEWS OF ALL THE MARKETS.

Items of Important Exclusive Information
are given Every Day.

THE LATEST MARKET MOVEMENTS.

All the prices recorded on the

London Stock Exchange.

Up-to-date in all Financial Matters.
Most News. Exclusive Articles.

ANSWERS TO CORRESPONDENTS

Appear Daily, with the names of the Shares about
which the inquiry is made.

ON SALE EVERYWHERE.

Publishing, Advertisement and Editorial Offices:
111, QUEEN VICTORIA STREET, LONDON, E.C.

Branch Offices: (New York, 20, Broad Street.
Paris, 36, bis Boulevard Haussmann.)

TELEGRAMS—Finews, cent. London TELEPHONES—GS30 City
(counts 2 words). (4 lines).

PUBLISHED DAILY IN FRENCH IN PARIS.



Pittsburgh Steel Company
Pittsburgh, Pennsylvania, U. S. A.

Manufacturers of
"PITTSBURGH PERFECT"

Open Hearth Steel Products

INCLUDING

Galvanized Wire Bright Nail Wire
Annealed Wire Bright Hard Wire
Varnished Wire Bright Soft Wire
Bolt and Rivet Wire
Galvanized Barbed Wire
Wire Nails Fence Staples

Pig Iron, Blooms, Billets, Wire
Rods, Hard Spring Coil Wire,
Twisted Cable Wire, Telephone
Wire, Bale Ties, Steel Hoops, Steel
Bands, Cotton Ties and Fabricated
Stock, Poultry and Lawn Fencing.

We are prepared to give PROMPT SERVICE, and solicit
your inquiries accompanied by complete specifications.

Address

PITTSBURGH STEEL COMPANY
EXPORT DEPARTMENT
EQUITABLE BUILDING
NEW YORK, U. S. A.

Cable Address: "PITTSTEEL"

FOURTEEN BUTTERS' FILTER PLANTS

AND THREE EXTENSIONS TO FORMER PLANTS

now operating on the Rand and giving complete satisfaction to everyone concerned.

Full particulars and operating data will be given on application.

50 lb. samples of slime will be tested free of charge to determine its filtering capacity. Estimates for plants, accompanied by complete general arrangement drawing, supplied on short notice. Write us for pamphlet regarding our process.

CHAS. BUTTERS & CO., LTD.

(INCORPORATED IN ENGLAND)

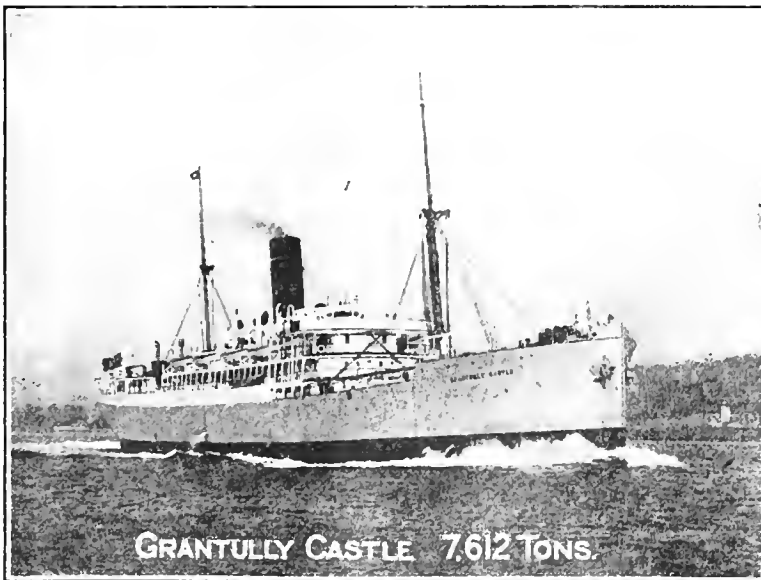
187, Exploration Building, Johannesburg.

P.O. Box 2652.

Telephone 3701.

Cable Address: "HUBNERITE."

FRASER & CHALMERS, LTD., AGENTS FOR SOUTH AFRICA.



GRANTULLY CASTLE 7,612 TONS.

Union Castle Line.

Sailings between SOUTH AFRICA and the UNITED KINGDOM by the Western Route, and by the Eastern Route (via Suez).

ROYAL MAIL STEAMERS sail homewards from Durban at daybreak every Sunday, and from Capetown at 1 p.m. every Saturday, calling at Madeira.

MAURITIUS AND REUNION SERVICE.—Sailings at stated intervals.

THROUGH BOOKINGS are arranged to America and Continental ports.

OUTWARD PASSAGES of friends in the United

Kingdom and the Continents of Europe and America, may be prepaid in South Africa.

COMBINED LAND AND SEA TOURS.—In conjunction with the Railway Administrations in South Africa, the Company issues Combined Rail and Steamer Tickets for Circular Tours at REDUCED FARES. Tickets are available for six months, and the journey may be broken at any point.

For full particulars of Freight and Passage Money apply to the Agencies of the
UNION-CASTLE MAIL STEAMSHIP COMPANY, LTD.,

AT CAPETOWN, PORT ELIZABETH, EAST LONDON, DURBAN, LOURENCO MARQUES, BEIRA AND JOHANNESBURG, OR TO THE SUB AGENTS IN THE PRINCIPAL TOWNS.

**Ingersoll-Rand
Co.,**

Exploration Bldg.,
JOHANNESBURG.

THE South African MINING JOURNAL

WITH WHICH IS INCORPORATED
"The South African Mines, Commerce & Industries"

ESTABLISHED 1891

PUBLISHED EVERY SATURDAY

**Ingersoll-Rand
Co.,**

Exploration Bldg.,
JOHANNESBURG.

VOL. XXVI., PART I. No. 1310. JOHANNESBURG, TRANSVAAL, SATURDAY, NOV. 4, 1916. [WEEKLY, PRICE 6D.]

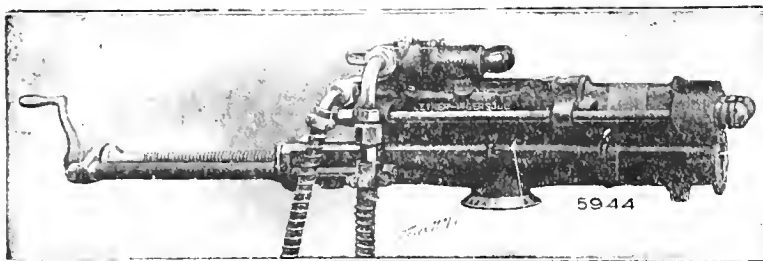
W. L. SAUNDERS, Chairman of Board.
W. R. GRACE, V.P. & Treas.

GEORGE DOUBLEDAY, President.
F. A. BRAINERD, Secy.

J. H. JOWETT, Gen. Sales Mngr.

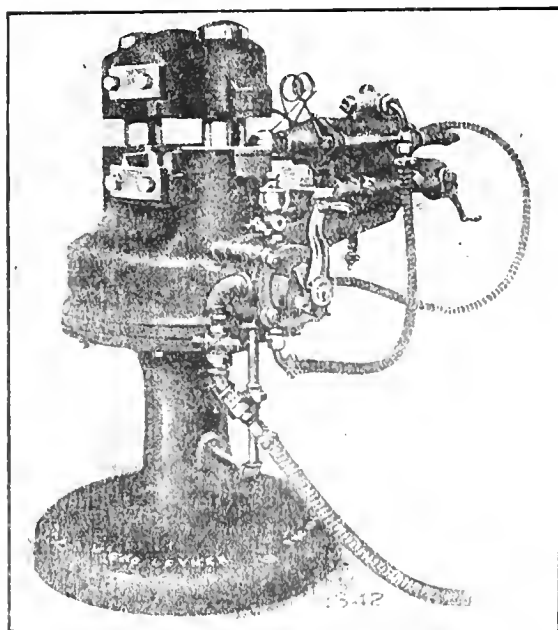
THE INGERSOLL-LEYNER DRILL

No
Dust



Fast
Drilling

AND THE LEYNER SHARPENER



AN IDEAL COMBINATION.

INGERSOLL-RAND CO., EXPLORATION BLDGS.,
JOHANNESBURG.